VOLUME 26 NUMBER 2

Pit and Quarry

With which is consolidated

CEMENT-MILL & QUARRY

CHICAGO, AUGUST, 1933

Pit and Quarry Field Puts Code Into Effect

IMPROVED SPIRIT IS EVIDENT

Evidence of returning prosperity in the nonmetallic-mineral industries is to be found in the flood of announcements to the effect that producers are raising wages, shortening hours and raising prices, and in the fact that plants which have been shut down in resuming operations. Some of the more favorably situated plants are actually working day and night in order to keep up with orders.

The cement industry was one of the first to catch the spirit of President Roosevelt's recovery program. Many plants announced higher wages and shorter hours several weeks before the general code went into effect on Aug. 1. Wage increases in most cases ranged from 10 to 20 per cent. with a minimum of 40 c. per hr., and working hours have been reduced to an average of 36 per week. This is in accordance with the cement code which will be submitted to the president by the Cement Institute representing over 90 per cent. of the capacity of the industry. With renewed activity in evidence in the construction field most of the cement plants are either now in operation or are scheduled to start at an early date.

The lime industry was the first in the nonmetallic-mineral field to adopt a code and conditions in this industry show an improvement for the first time in five years. A minimum wage of 35 c. per hr. and a maximum 40-hr. week were agreed upon, and are being carried out by all the larger producers and most of the smaller ones. Increased activity is evident and many plants are back in operation in anticipation of better business.

Crushed-stone, sand-and-gravel and slag producers have also responded quickly to the president's recovery proposals. Because of the vast number of producers in these industries, however, it has been impossible for them to make the same progress in this direction as the smaller industries. Reports are being received daily that more men are being hired, and that wages are being raised and hours shortened to conform with the general code. Many of the larger producers were among the first to sign the voluntary agreement which went into effect Aug. 1.

National Safety Council Publishes Accident Facts

The National Safety Council, Inc., 20 N. Wacker Drive, Chicago, Ill., has published the 1933 edition of its "Accident Facts" which is now available for distribution. As in past editions up to date information is given on industrial, motor vehicle, home, public, railway, and other forms of accidents.

New Concrete-Blocks Plant Built in Ohio

★ A new plant for the manufacture of concrete building blocks was recently erected at Ada, O., by Harry H. Wolfe. Operations were begun on July 10.

★ The Jones-Scott Co., Walla Walla, Wash., recently installed a new Niagara roller-bearing vibrating screen in its sand and gravel plant at Umatilla, Ore.

The Southern Alkali Corp., recently awarded the contract for the construction of a new $7,000,000 plant at Corpus Christi, Tex., to the H. K. Ferguson Co., of Cleveland, O.

States Surface 29,577 Miles of Roads in 1932

10,009 MILES ARE HIGH-TYPE

Surfacing of 29,577 mi. of state highways was completed in 1932, according to information collected from state officials by the Bureau of Public Roads, U. S. Dept. of Agriculture. On 19,568 mi. the surfaces laid were of low type, such as sand-clay, gravel and waterbound macadam; on 10,009 mi. the surfaces were of higher type.

The state-highway systems now include 358,210 mi., an increase of 29,268 mi. during the year. The combined systems are reported to have 109,735 mi. of high-type surface, 156,325 mi. of low-type surface, and 92,150 mi. still unsurfaced.

The surfacing placed in 1932 was as follows: Sand-clay and topsoil 1,362 mi.; gravel (with and without bituminous treatment) 16,864 mi.; waterbound macadam (with and without bituminous treatment) 1,342 mi.; bituminous macadam 1,466 mi.; bituminous concrete and sheet asphalt 1,476 mi.; cement concrete 6,914 mi.; and block types 153 mi.

Details concerning the status of improvement of the state systems will appear in a later issue.

New Stone Plant Built by Pennsylvania Firm

★ The Central Builders Supply Co. recently built a new crushed stone plant at Buffalo Cross Roads, near Sunbury, Pa. The plant has a capacity of about 50,000 tons annually, most of which will be used for highway work.

New York Ban Against Foreign Cement Lifted

The New York City Board of Estimate recently rescinded a resolution calling for American-made cement for the city's public works because foreign cement was found to be cheaper.

★ The Universal Atlas Cement Co., has installed a Blaw-Knox deduster in its plant at Universal, Pa.

Illinois Buyers Should Not Pay "Sales" Tax

DEALERS MUST NOT PASS IT ON

The retailers' occupation tax, generally but incorrectly known as the Illinois "sales" tax, must not be passed on to the consumer, according to *General Rules and Regulations Relating to Retailers' Occupation Tax Act effective July 1, 1933.* This circular, issued by the Department of Finance of the State of Illinois on June 30, contains a copy of the act and special rules explaining the intent and application of the law.

Contrary to popular belief, retailers are not required or authorized to collect this tax from the purchaser, because, as is explained in a note at the foot of page 4 of the circular, "the tax imposed by this Act is an occupation tax upon retailers and is not a tax upon consumers." Sec. 2 of the act states that "a tax is imposed upon persons engaged in the business of selling tangible personal property at retail in this State at the rate of two per cent. (2%) of the gross receipts from such sales in this State of tangible personal property made in the course of such business upon and after the taking effect of this Act and prior to July 1, 1935."

Nowhere in the act is there any provision either requiring or authorizing the retailer to pass the tax on to the consumer, either by adding the exact amount of the tax, or by adding an arbitrary amount based on the exact amount of the tax, or by raising his individual prices by an amount equal or approximately equal to the amount of the tax. Competent legal opinion holds that all such methods are attempts to circumvent the intent of the law and, as such, are illegal. It is clearly the intent of the law that the burden of the tax shall fall on and be borne by the retailer.

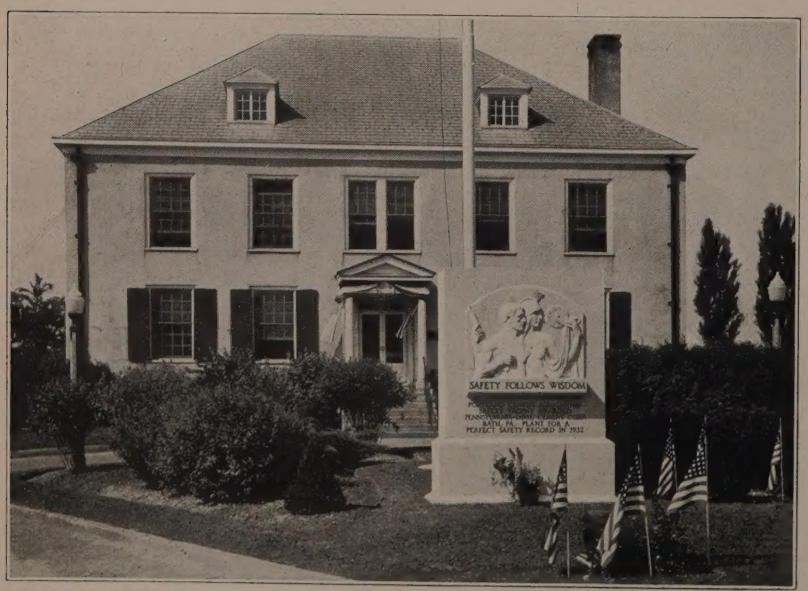
The foot-note referred to says further (italics ours):

"In fixing the price of his products the retailer may consider the tax to be paid by him under this Act *as one of the elements of cost in the conduct of his business* and may include the amount of such tax in fixing such price *in the same manner as rent, general taxes and other general overhead expenses* are taken into consideration. *But he is neither required nor authorized to collect the tax as a tax from his customers.* He should not misrepresent the amount of the tax imposed by the Act *nor engage in profiteering under the guise of collecting such tax from purchasers.*"

Despite their lack of authority for passing their occupation tax on to their customers, the practice is very common among all classes of retailers, those selling special products such as machinery, equipment and supplies, as well as those selling general commodities. Purchasers should refuse to pay the tax whenever the tax is asked of them, regardless of the form in which the tax is passed on. The Department of Finance is advising those who ask for an opinion not to pay the tax.

Improvements Made to Pennsylvania Lime Plant

★ The Whiterock Quarries, Inc., Bellefonte, Pa., recently built a new stone-and-steel hoist house at its stone and lime plant at Pleasant Gap. A new hoist was also installed.



Portland Cement Assn. trophy which was recently awarded to the Bath, Pa., plant of the Pennsylvania-Dixie Cement Corp. for a perfect safety record in 1932.

Roads Give Easy Access to Century of Progress

RUMORS MISLEAD TRAVELERS

Contrary to all reports circulated by the railroads and home-town merchants, visitors to A Century of Progress in Chicago are experiencing no difficulties in reaching Chicago and the fair by motor car. In an effort to increase the number of visitors using the railroads, the latter have spread misinformation about motor travel, stating, for example, that motorists can not drive near Chicago because the roads are clogged with traffic, that those who enter Illinois must procure Illinois licenses, that once in Chicago it is impossible to get anywhere near the fair grounds by motor vehicle, etc. Home-town merchants are saying that one can not get hotel accommodations in Chicago, that rates there have been raised unjustifiably, and that merchants are offering cheap merchandise at exorbitant prices. None of these charges have the slightest foundation of fact.

1. You can enter Chicago by motor from any direction. Road traffic is naturally heavier than normal, but it is well handled, both outside and inside Chicago. There has been no appreciable reduction in the average rate of travel. One can still motor the length of Chicago (26 miles), passing through the central business district, in an hour.

2. You can drive your party direct to any of the gates of the fair and can park your car at reasonable rates (not exceeding 50c) within a few hundred feet of any gate.

3. You need not buy a state or city license, and you are not subjected to special levy of any kind. There are no special regulations.

4. The best hotels are well filled and sometimes can not accommodate visitors. However, they always take care of those who have been prudent enough to make reservations.

5. Hotel-room and dining-room rates are seldom higher than they were before the fair opened. Food at the fair costs only a little more than at the hotels.

6. Reputable merchants have not increased their prices on account of the fair. Prices are still lower than they were a year ago.

7. Nearly 7,000,000 persons have visited the fair. Most of them came from outside Illinois, and most of them motored to and from Chicago. In a half-hour on Michigan Avenue one can see cars from every state in the country and from several European countries.

★ The McGrath Sand & Gravel Co. has purchased a new gasoline dragline which is being used for stripping overburden from its deposit at Mackinaw, Ill.

National Industrial Recovery

President Approves of Cement Wage Proposal

OFFER 40 CENTS AND 36 HOURS

Chas. F. Conn, president of the Cement Institute, on July 13 sent a letter to the President of the United States which contained a proposal of the cement industry immediately to advance wages in its mills to 40 cents an hour and to assume a 36-hr. working schedule. The proposal was well received by President Roosevelt and by Administrator Hugh S. Johnson. A majority of the cement manufacturers have already advanced wages in accordance with this proposal in advance of the date of Aug. 1 set by the Cement Institute. The letter is reprinted below.

Dear Mr. President:

The cement industry of the United States, represented by the Cement Institute, desires to cooperate with you heartily and at once in your endeavor to increase purchasing power and employment. It had hoped to present its code promptly, but variations in practice in different parts of the country present such difficulties that it may still require some time to complete the code, ready for submission to the industrial recovery administrator.

The resulting delay is particularly undesirable because of the need of prompt increase in purchasing power. Sensing this need many mills have put wage increases and reductions of hours into effect in the last two weeks. But the industry feels that this movement should promptly be made in general, and without entailing the delay that would be involved in waiting for the completion of its code.

Accordingly we have today transmitted a letter to the industrial recovery administrator, Hugh S. Johnson, informing him that a minimum wage of 40 cents per hour, with appropriate increases for wage earners in the higher classes, and a maximum time of employment of 36 hours per week will be put into effect generally in the cement industry as soon as possible but not later than August 1, the minimum wage to be subject to adjustment due to the variations of conditions geographically. The time of 36 hours is to be the average over a six months' period, with permission to work a maximum of 42 hours in any given week.

For your information let me add that the Cement Institute represents the industry in every part of the country and includes in its membership 91 per cent. of the plants and 97 per cent. of the productive capacity.

We trust, Mr. President, that this method of increasing purchasing power promptly, without causing delay on account of other features of the code, will meet with the hearty approval of yourself and the administrator.

The telegram of acknowledgment from Administrator Johnson is also reprinted.

I am greatly encouraged by the action taken by your organization as outlined your letter of July 13th and desire to express my appreciation for the voluntary action which your group has taken and congratulate you on the splendid spirit which prompted this.

Appoint Ten Regional Public Works Advisors

President Roosevelt on July 25 appointed ten regional advisors to the public works administration. He named the headquarters of the regions in which the $3,300,000,000 public works funds will be spent.

These advisors will serve as direct representatives of the administration. They will obtain from state boards lists of projects for consideration.

The regional advisors, their headquarters, and the states in the region are:

REGION 1—Ralph L. Cooper of Belfast, Me.; Boston, Maine, Vermont, New Hampshire, Massachusetts, Rhode Island, and Connecticut.

REGION 2—Edward J. Flynn of New York City; New York state.

REGION 3—Daniel J. Tobin of Indianapolis; Chicago, Illinois, Indiana, Michigan, Ohio, and Wisconsin.

REGION 4—Frank Murphy of Wheaton, Minn.; Omaha, North Dakota, South Dakota, Nebraska, Minnesota, Iowa, and Wyoming.

REGION 5—Dana Marshall of Portland, Ore.; Portland, Montana, Idaho, Washington, and Oregon.

REGION 6—Justus S. Wardell of San Francisco; San Francisco, California, Nevada, Utah, and Arizona.

REGION 7—Clifford Jones of Spur, Tex.; Fort Worth, Texas, Louisiana, and New Mexico.

REGION 8—Vincent M. Miles of Fort Smith, Ark.; Kansas City, Colorado, Kansas, Oklahoma, Missouri, and Arkansas.

REGION 9—Monroe Johnson of Marion, S. C.; Atlanta, Mississippi, Alabama, Georgia, South Carolina, and Florida.

REGION 10—George L. Ratcliffe, Baltimore; Richmond, Tennessee, Kentucky, West Virginia, Maryland, Delaware, Virginia, and North Carolina.

Codes of Fair Competition

Copies of the Codes of Fair Competition already prepared but not yet presented to the National Recovery Board can be obtained from the following sources:

Cement

The Cement Institute,
(H. C. Lundborg, secy.)
11 East 44th St., New York, N. Y.
(Code not yet finally approved by industry)

Gypsum

Gypsum Assn.,
(Henry J. Schweim, secy.)
211 W. Wacker Drive, Chicago
(Code will be considered at a meeting of the gypsum industry at the Bismarck Hotel, Chicago, about August 10.)

Lime

(Complete code published in PIT AND QUARRY for July, pp. 33-36.)

National Lime Assn.,
(Norman G. Hough, pres.)
927 15th St., N. W., Washington, D. C.

Mineral Aggregates

(Crushed stone, sand and gravel, and slag)

("Tentative" code printed in full in PIT AND QUARRY for July, pp. 21-25, 50; complete revisions in this issue.)

National Crushed Stone Assn.,
(J. R. Boyd, secy.)
1735 14th St., N. W., Washington, D. C.

National Sand and Gravel Assn.,
(V. P. Ahearn, exec. secy.)
545 Munsey Bldg., Washington, D. C.

National Slag Assn.,
(H. J. Love, secy.-treas.)
937 Leader Bldg., Cleveland, O.

Highway Program Maps Submitted by 24 States

Program maps for highway work to be done under the National Industrial Recovery Act submitted by the highway authorities of 22 states and the District of Columbia have been tentatively approved by Acting Secretary of Agriculture R. G. Tugwell and Secretary of the Interior Harold L. Ickes, Chairman of the Special Board for Public Works. The states are: Connecticut, Delaware, Idaho, Iowa, Louisiana, Maine, Massachusetts, Minnesota, Missouri, Nebraska, New Hampshire, New Mexico, North Dakota, Ohio, Oregon, Tennessee, Texas, Vermont, Washington, West Virginia, Wisconsin, and Wyoming.

Program maps of Utah and New York had been approved previously. Since July 17 detailed plans for at least 30 projects in these two states have been approved and the states have been authorized to proceed with the letting of contracts. Similar progress in the additional states will result within a few weeks in the letting of hundreds of road and street construction contracts.

Contractors on these projects will be required to select labor from lists submitted by employment agencies designated by the United States Employment Service. The Bureau of Public Roads has arranged to keep the Department of Labor advised as to dates of lettings of contracts and labor requirements for each project. The United States Employment Service plans to supply contractors with labor lists immediately after contracts are awarded.

Contractors must give first preference to ex-service men with dependents and then to residents of the county in which the work is performed and to residents of the state in the order named.

Michigan Will Spend 16 Millions for Roads

STATE TO FURNISH 3 MILLIONS

According to a recent announcement about $16,000,000 will be spent for highway construction in the state of Michigan during the current fiscal year. Of that total $13,000,000 is federal aid, including $300,000 now remaining unexpended which need not be matched with state appropriations. The remaining $3,000,000 of highway funds are being furnished by the state.

New Illinois Gravel Plant in Operation

★ The Lake Erie Mining Co., Peoria, Ill., has just completed the construction of a new semi-portable gravel plant, equipped with Stephens-Adamson belt conveyors, washers and vibrating screens, a Telsmith jaw crusher and Goodyear conveyor belting. The plant is of all-steel construction and has a rated capacity of about 25 tons per hour. It will be operated in connection with the present Lake Erie concrete batching plant which was furnished by the Stephens-Adamson Co. last year. Aggregate is delivered by truck to the new plant where it will be washed, sized and conveyed to storage for retail sales and use in the batching plant.

U. S. Gypsum Co. Buys Indiana Roofing Plant

The United States Gypsum Co. recently acquired the McHenry-Millhouse Mfg. Co., South Bend, Ind., makers of roofing materials. This property supplements the company's line of roofing materials and rounds out this division of its business.

Columbia Quarry Co. Buys Delivery Trucks

★ The Columbia Quarry Co., St. Louis, Mo., has purchased four new Ford V-8 trucks which it is using for delivering crushed stone from its plant at Columbia, Ill. This is a new venture for the company as all of its hauling was previously done by contract.

Marquette Cem. Mfg. Co. Elects New Officers

The Marquette Cement Mfg. Co., Chicago, Ill., recently completed a reorganization made necessary by the death of Theodore G. Dickinson, president. Stuart Duncan, president of the La Salle State Bank, was elected chairman of the board of directors. Walter A. Wecker, formerly secretary and treasurer, is the new president and continues as treasurer. W. W. Dickinson, son of the late Theodore G. Dickinson, is now a vice-president. Richard Moyle, Sr., for many years general superintendent of the company operations, is now vice-president in charge of operations, his son, Frank Moyle, succeeding him as general superintendent. Other officers are: V. J. Hanley, secretary and assistant treasurer; D. S. Colburn, assistant to the president; F. J. Jaeger, general sales manager.

Air Separator Installed by Texas Cement Plant

★ The San Antonio Portland Cement Co., of San Antonio, Texas, has purchased a 16-ft. Raymond mechanical air-separator, which will be used in connection with a ball-mill for making super-cement as well as regular cement.

★ The Canada Talc Co., Madoc, Ont., Can., recently installed an 8-ft. Gayco Reliance centrifugal air separator furnished by the Universal Road Machinery Co.

Dubuque Stone Prod. Co. Making Changes

The Dubuque Stone Products Co., Dubuque, Ia., is making several changes which will separate the fuel from the stone, gravel and building material operations. The main office of the company has been moved from 501 Garfield Ave. to the crushing plant and quarry at Eagle Point. A new office, coal bunkers and loading equipment are now under construction at 506 Garfield Ave.

Ohio Stone Producer Buys New Equipment

★ The Penry Stone Co., Radnor, O., has made a number of improvements to its crushing plant and is now operating at capacity. The railroad formerly used to haul stone from the quarry to the plant was abandoned and trucks are now being used. In the plant an old crusher was replaced with a new and larger unit and the old revolving screens were replaced by Simplicity vibrating screens.

Michigan State Cement Plant Offered for Sale

The Michigan State Administrative Board, through B. J. Abbott, secretary, has advertised for sale the state cement plant located at Chelsea, Mich., together with all land, equipment, buildings, and sundry properties. Sealed proposals are to be in the hands of the secretary by 10 o'clock A. M., August 4.

★ The new silica plant of the Mid-Co Products Co., Meade, Kan., went into operation recently. Equipment for grinding, screening, and packing has been installed.

State Code Adopted by Wisconsin Producers

REGULATE HOURS AND WAGES

A code of fair competition, setting up minimum wages and limited hours of work, was adopted by the crushed stone, sand and gravel industry of Wisconsin July 21 in Milwaukee. The first industrial code adopted in Wisconsin under the national recovery act, it was in the hands of Gov. Schmedeman July 24 for his approval and is expected to be in operation within three weeks.

The code, approved by firms supplying 88 per cent. of the total crushed stone, sand and gravel in Wisconsin, provides for:

1. A maximum 40-hr. week for unskilled laborers.
2. A minimum wage of 40 cents an hour for the same type of labor.
3. Elimination of cut rate competition by the establishment of an average cost of production.
4. Division of the state into three districts for administrative purposes under boards elected by the producers themselves but finally answerable to the governor.

Thirty-three of the 49 producers in the state were represented at the Milwaukee conference when final approval was given the proposed code.

New Castle Stone Plant Installs New Equipment

★ The New Castle Lime & Stone Co., which was reported in the July issue of PIT AND QUARRY to have leased the plant of the Kittanning Limestone Co., at Kittanning, Pa., has made a number of improvements to the plant which have nearly doubled its capacity. A new crusher, several belt conveyors, bucket elevators, and screens were installed. A 1500-ft. spur track is being built and future plans call for a new dock and harbor for river shipment.

Mathieson Acquires Beaver Products Plant

The Mathieson Alkali Co., New York City, recently acquired the mines, plants and properties of the Beaver Products Co. of Virginia through the purchase of all of this company's outstanding bonds, according to E. M. Allen, president of the Mathieson company. The gypsum properties acquired at North Holston, Va., were formerly the Southern Gypsum Co. and later became a subsidiary of the Certainteed Products Co.

★ The Miami Gravel Co., New Baltimore, O., recently installed an 18-in. by 600-ft. Cincinnati Rubber Co. belt conveyor.

A Century of Progress

Link-Belt Co. Exhibit Displays Complete Line

The exhibit of the Link-Belt Co. in the Mineral Industries and Industrial Engineering Section of the General Exhibits Group is one of the most complete and interesting industrial exexhibits at the Exposition. The use of dioramas and translite illustrations together with large ornamental models of conveyor chain links for decorative purposes make this exhibit unique, and the effect is enhanced by the distinctive color scheme used.

The 25 dioramas used each depict a different type or class of equipment. These are mounted on display cases which contain full-size products, giving the visitor an opportunity to see the various products close at hand and as they appear installed. The translites are large illuminated colored glass photographs which depict installations of equipment in the various industries.

Link-Belt Co. exhibit.

Booth of Harnischfeger Corp.

General Electric Co. Features House of Magic

The exhibit of the General Electric Co. is one of the most pretentious at the Century of Progress Exposition. Most of its varied and interesting displays are concentrated in 9,000 sq. ft. of space on the main floor of the great circular hall of the Electrical Bldg. on Northerly Island. Chief among the exhibits is the "House of Magic," an air-conditioned auditorium with capacity for 200 people where an all-day series of lectures and demonstrations is held. The popularity of this feature is such that the room is crowded at every performance.

There are literally hundreds of units of electrical equipment of all sizes and types and for all purposes on display. This includes power, transportation, industrial, lighting, x-ray, air-conditioning, household, and many other classes of equipment. Models of large vessels, locomotives, turbines, etc., are also on display, some of them operating. Unusual applications of photoelectric cells, cathode rays, transmission of sound by light, and other little-known developments are also on display. The beautiful decorative and lighting effects on both the exterior and interior of the building are alone well worth seeing for those not electrically minded.

Welded Booth Feature of Harnischfeger Exhibit

The exhibit of the Harnischfeger Corp. is located in Group No. 9 in the Travel and Transport Bldg. The booth housing this exhibit is unique in that it is made of aluminum, copper, brass and steel all welded together by means of the P&H-Hansen arc welder. An operating welder is one of the features. Another feature is a P&H-Milwaukee hoist which visitors are invited to operate. In addition there are other equipment displays and a series of pictures trace the origin and development of the electric traveling crane.

Animation Feature of Westinghouse Exhibit

The exhibit of the Westinghouse Electric & Mfg. Co. which occupies a large part of the Electrical Bldg. on Northerly Island, is characterized by animation. Its aim is to tell the story of the growth of electricity and its wide field of use.

There are life-size moving models of a 100,000-hp. steam turbine, a waterwheel generator of about the same size, and working models on a smaller scale showing the use of electric power in various industries.

The whole exhibit is bathed in mobile-color lighting and has a tower of history, with movable silhouettes telling the history of lighting, industry and transportation, at one end. Six striking micarta panels on the rear wall of the hall tell what the Westinghouse company has contributed to this century of progress. A gallery contains laboratory apparatus with which many unusual demonstrations are made.

The General Electric "House of Magic."

The colorful Westinghouse display.

Editorials

Sign the P. R. A. To-day!

PENDING the acceptance by the President of industrial codes of fair competition that have yet to be presented or considered, all employers of labor have been asked to sign the President's Reemployment Agreement by which the intent of the National Industrial Recovery Act is to be given effect almost immediately. The President and Administrator Johnson, both reported to have become impatient at the delay with which some industries have prepared and submitted codes of fair competition, have decided upon this method of bridging the gap between the passage of the act and the time when various industries voluntarily agree to the adoption of maximum hours and minimum wages of employment. They are determined that the President's plan of recovery as authorized by Congress shall not fail for want of decision and action on the part of employers or because some industries, for selfish reasons peculiar to themselves, seek to nullify the effects of the act by adopting a policy of watchful waiting and passive resistance.

It is regrettable that such action on the part of the President has become necessary by the fact that so many employers were unwilling quickly and wholeheartedly to join what the administration hoped would be a nationwide coöperative movement. It is regrettable that so few industries were ready to accept the principles of the "new deal" and to propose codes that embodied a reasonable expression of the spirit of the act. It is regrettable, too, that as a people we were so inured to the habits of selfish individualism that we could not more readily throw off the traditions that had brought us into our difficulties and adopt, even under the pressure of a great national emergency, an attitude more considerate of the common good. We call these things regrettable because the indifference, the selfishness, the stubborn obstructionism of some employers have made it appear that all business men are unwilling to act in the public interest at a time when such action is not only necessary but also, as the President's latest appeal indicates, inescapable.

The nonmetallic-mineral industries, we are glad to be able to say, were quick to act in sympathy with the spirit of the National Industrial Recovery Act. The lime industry, by adopting its proposed code of fair competition late in June, became the first of our group of industries to take decisive action. The mineral-aggregates group—crushed stone, sand and gravel, and slag—adopted its code on July 15, and the cement industry will present its code to the National Recovery Board within a few days. Each one of these groups has shown commendable zeal and a fine sense of public spirit in responding so quickly to the President's first plea for action. Yet, in spite of the rapidity with which conflicting and often petty interests were composed within each group, the problem of restoring the purchasing power of more than a hundred million people remains great and distressing, because the codes already adopted have not been accepted and made operative. For these reasons the President has found it necessary to propose the agreement which was circulated among employers last week and on which he has asked prompt action.

Undoubtedly much valuable time will be consumed in getting nationwide action on the President's Reemployment Agreement, for there will be those who, laggard in proposing codes for their own industries, will be laggard in acceding to the wishes of the administration now. But the action of those who sign early, together with the display of the badge of cooperation which will be given to all signers, will have a powerful moral effect in hastening the action of those who would otherwise delay. Furthermore, it will immediately label those who are willing to cooperate in the work of national recovery and so set up a tie between buyers and sellers who have accepted the President's plan. It is for these reasons that we urge every employer in our industries to sign the President's agreement to-day, even though his industry may have already adopted a code. The President's new plan gives every employer the opportunity to go on record individually as to his attitude toward the problems that beset us, and no one who is truly interested in national recovery will allow such an opportunity to pass. It provides a very direct and positive method by which those who could not participate in the framing of their industries' codes can voice their determination to meet the situation squarely and at once.

The Chicago Code Convention

THE Chicago convention of the mineral-aggregates industries presented a spectacle that should have encouraged every sincere observer and participant. The problems which it faced were unusual in nature and severity, yet they were met and solved in a spirit of mutual concession indicative of a strong desire to place the good of the mass above that of the individual.

No one who sat through the long open sessions, the directors' meetings or those of the many committees, which continued in an almost unbroken sequence day and night from Wednesday to Saturday of that memorable week, could have failed to be impressed with the sincerity, the determination and the unselfishness with which most of those present were imbued. An earnestness that is uncommon in conventions, a willingness to submerge self-interest in the greater objective of the general good, and a readiness to subscribe to principles deemed radical but accepted as necessary pervaded every gather-

ing. These are the characteristics that will be remembered long as the strong undercurrents of feeling that moderated the warmth of conflicting individual interests and gave the convention its point of view and determined its action.

Of course all shades and varieties of opinion were in evidence. And, in addition to the rivalry that is normal between competitors in a single industry, there was the rivalry that exists between industries producing competitive materials, a form of opposition that is more difficult to suppress because it is of wider application. Yet all these differing minds were brought into harmony, conflicting interests were reconciled, and the code was adopted without a single dissenting vote. Few men even of mature years had ever seen such a demonstration of fellowship in competition.

There were men to whom their individual problems assumed undue importance—the perfectly natural result of a lifetime devoted to the promotion of their own advancement—and they wanted special favors and special exemptions. There were men who strongly but unsuccessfully opposed the raising of wages—they were the self-made men who were determined that the present generation should not find life any easier or pleasanter than theirs had been—and they sought to keep the hours long and the wages low. There were men who wanted to tell the government what to do rather than to be told by it—the rampant individualists who were accustomed to riding rough-shod over everything that stood in their way—and their attitude was that of "no compromise." There were men to whom the code idea appealed as an opportunity for acquiring some advantage over a competitor—to some minds trained in the pursuit of selfish interests the comprehension of altruistic concepts is impossible—and their pleas rang the same egoistic note unceasingly. There were a few who saw in the code a means for gratifying personal ambition—the inferiority complex asserts itself most strongly where it believes it encounters the most formidable competition—and they would gladly have used it as a stepping-stone to higher places.

All these conflicting aims and many others were present, which merely proves that the gathering was a human assembly, representative (even if not accurately or fairly) of the great industries from which it was drawn. Yet all were reconciled, not by the spell of oratory, but largely by the growth of conviction and partly too by the pressure of mob opinion. Old ideas concerning individual rights (that is, employers' rights) and individual duties (that is, workers' duties) were there; the old cry of "too much government in business" was there; the old and almost outworn ideas of "individual initiative" and "competition without restraint" were there. But intelligence won the upper hand, opposition both reasonable and unreasonable was gradually broken down, and the code won the approval that the work of its framers and those who suggested wise changes in it deserved.

Some of those who were present went to their homes less than wholly satisfied. Others who did not care or were not able to leave their homes in order to participate in the discussions are probably not even partly satisfied. To them we can only say that they missed the opportunity of seeing how conscientiously opposing opinion was allowed to express itself, how carefully conflicting opinion and qualifying suggestion were studied by the numerous committees, how well pleased the majority was with the manner in which the discussions and procedure were handled. Those who deliberately stayed away, either because they were out of sympathy with the general plan or because they underestimated its importance, must not complain if their opinions, not having been heard, were not regarded, or if their interests, not having been represented, were not protected.

Cement Workers' Wages

WE think that the action of many cement manufacturers in raising the wages of their workers, before their industry's code had been presented to the National Recovery Board and before the President made his appeal of July 21 asking for voluntary coöperation on the part of employers in raising wages and shortening hours, is deserving of unstinted praise. This action was not dictated by a fear of penalty, in the form of either government action or public opinion, but by a sensible regard for the future status of the cement industry. The extent to which the policy has become effective may be judged by the reports published in the news pages of this issue, where will be found also accounts of the improvements in working conditions and employer-employee relations which have been accomplished in numerous cases.

The decision of cement manufacturers to raise wages before it became incumbent upon them to do so shows a willingness to carry out the spirit of the administration's industrial-recovery plans that was worthy of adoption by other industries. It discloses, too—although this may not have been intentional—a sagacity that speaks well for the cement industry. Having lost the confidence of the public in recent years—partly through inadvertence and partly through an excess of secretiveness—it is wise that such a step was taken at this time, when the public mind is in a hopefully-expectant state and when actions affecting the public good are likely to be sympathetically received.

It must have been apparent long ago, to cement makers as well as to other classes of manufacturers, that there could be no improvement in business until there had been some increase in the public's power to buy and that buying power could not be enhanced unless real wages were raised. The action of the cement makers recognizes the truth that has so long been evident to many and expresses that recognition through a decision to raise wages at once. This concession to public opinion, if it is construable as such, should win for the cement industry a larger share of public sympathy than it has had in the past, and marks, we hope, the beginning of a new policy with respect to public relations.

Consolidated Rock Products Co. Entirely Rebuilds Puente Largo Plant

Rush Work When Aggregate Contract for New Pine Canyon Dam Is Secured

By HARRY D. JUMPER

THE Consolidated Rock Products Co., Los Angeles, Cal., last year further improved its position in that district by rebuilding its Puente Largo plant. Plans for this work had been under way for some time when a contract was secured to furnish aggregates for the construction of the Pine Canyon dam for the city of Pasadena. As this plant was ideally located only a few miles from the dam site in San Gabriel Canyon it was decided to rush its construction immediately.

High-early-strength cement was used in all concrete to hasten the stripping of forms and to allow additional concrete to be poured above without injury to the structure. Actual construction work on the plant commenced June 15, 1932, and production started on Sept. 15. A portion of the old plant was utilized in the new layout. It was necessary to carry on all new construction in and around the old plant without interrupting its operation. This was successfully done and only three days were required to connect the old and new units together ready for production.

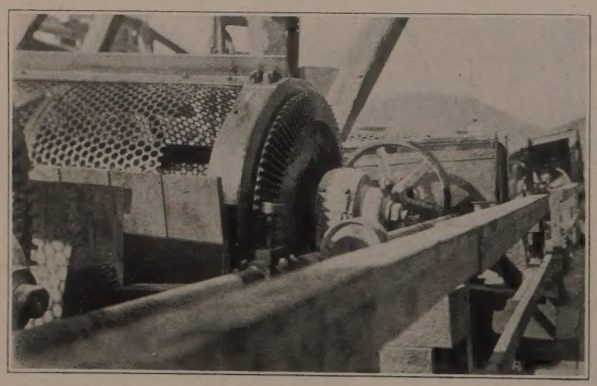
The new storage bunkers consist of 12 bins with a total capacity of 3,000 tons. As most shipments are made by railroad two standard-gage tracks run under the bunkers and cars are loaded through gates on the bottom of the bins. The construction is of reinforced-concrete footings, beams, and columns with the bunker floor slab and 4 ft. of the bin walls also of reinforced concrete. The remainder of the walls above the wet line, the superstructure, the conveyor trestle, and trusses are constructed of timber.

The deposit upon which this plant is located is in the upper San Gabriel cone near the mouth of San Gabriel canyon and for this reason the raw material contains a high percentage of gravel and bowlders. This is particularly advantageous on the present market where the sales of sand do not exceed 20 per cent. of the total aggregates sold. The bowlders in the deposit run up to 48 in. in diameter; all over 30 in. are cast to the bank side by the shovel and are afterwards drilled and cracked. These pieces are loaded with the other material on the next shovel cut.

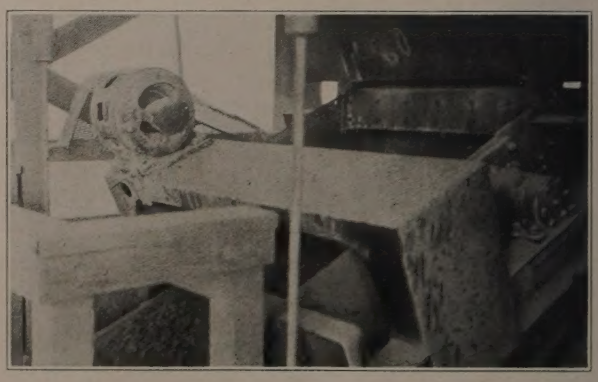
The pit now being worked covers an area of approximately 80 acres and is excavated to a depth of 60 ft. All digging and loading is done with a 70 C Bucyrus railroad-type steam shovel equipped with a 2½-cu.yd. dipper. Hauling of raw material to the plant incline is done with two 30-ton steam saddle-tank locomotives which push twelve 5-cu.yd. Western dump cars to a train. Thirty-six cars are used in all, making it possible always to have loaded cars at the foot of the incline. The pit haul averages from one-half to one mile in length depending on the position of the shovel.

The original hoist and incline used in the old plant are utilized in the present set-up. The Allis-Chalmers single-drum hoist is driven by a 200-hp. induction motor. Two loaded pit cars are handled at a time. The material from the pit cars is dumped over a set of rail grizzlies spaced at 8 in., the oversize going to a No. 12K Gates gyratory crusher set at 4 in. The crushed material from this unit and the raw material which passed through the grizzly are fed together to a 36-in. belt-conveyor, thence to a jacketed scalping screen having 6-in. circular openings in the main section and 3-in. circular openings in the jacket.

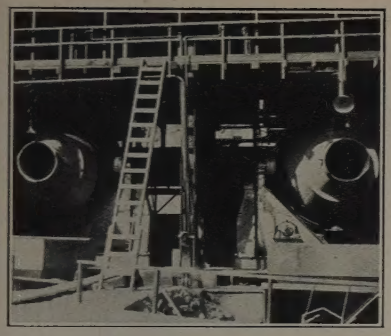
Usually the material retained on the inside section, or the plus 6-in. size, goes to a No. 6 McCully



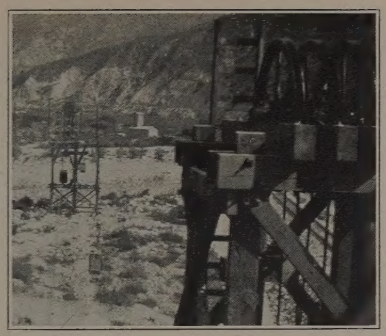
The revolving sizing screens and their drives.



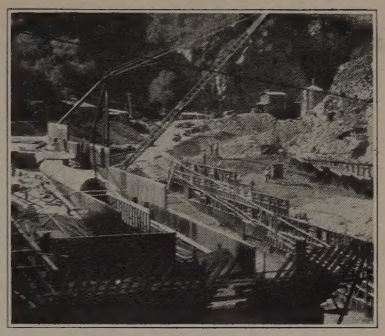
One of the triple-deck shaker screens and its drive.



The two mixers in the concrete plant at the dam.



The aërial tramway which takes aggregates to the mixing plant.



A section of the Pine Canyon Dam under construction.

gyratory crusher set at 2½ in. This product is then discharged on a 30-in. belt-conveyor to the crushed-rock side of the screening plant. The material passing the inside section and retained on the outside jacket, which is material minus 6 in. and plus 3 in., goes to a Symons 4-ft. cone crusher. This product is also discharged on the crushed-rock conveyor mentioned above. The material passing the outside jacket consisting of all gravel and sand minus 3 in. in size is discharged on a 30-in. belt-conveyor leading to the screening and washing plant.

The crushed-rock or dry side of the screening plant consists of two 24-ft. by 60-in. jacketed trommel screens, each having a 10-ft. section of 1¾-in. and 4-in. circular openings and a 9-ft. by 72-in. jacket of 1-in. square openings. The product from this jacket goes to two triple-deck shaker screens designed and built by the Conveyor Co., of Los Angeles, and equipped with ⅜-, 3/16- and ⅛-in. square opening screen cloth. The finished products from the shaker screens go directly to the storage bins, with the exception of the minus ⅛-in. size which is taken by a short-belt conveyor to the sand classifier.

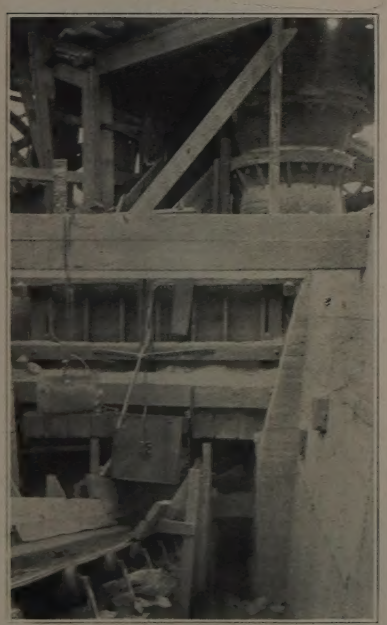
The oversize from the crushed-rock screen described above is stored in a bin and is fed to a belt-conveyor which runs the full length of the bunkers on the outside. This conveyor is so placed and designed that it can be used for loading and blending several sizes of aggregates, making it a practical method for meeting combined gradings in specifications as well as serving as a return conveyor for the oversize. Recrushing of the oversize is done by another Symons 4-ft. cone crusher.

The crushed rock sizes produced are standard in this district, the nomenclature and sizes being as follows:

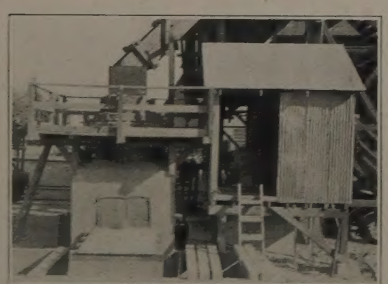
Crushed rock No. 1.....	4 in. to 1½ in.
Crushed rock No. 2.....	1¾ in. to ¾ in.
Crushed rock No. 3.....	1 in. to ⅜ in.
Crushed rock No. 4.....	⅜ in. to ⅛ in.
Crushed rock No. 5.....	⅛ in. to 200-mesh.

The washing and screening plant consists of a 24-ft. by 60-in. jacketed trommel screen, a 4-ft. by 6-ft. single-deck Hum-mer vibrating screen, and a double Stephens-Adamson sand-drag classifier.

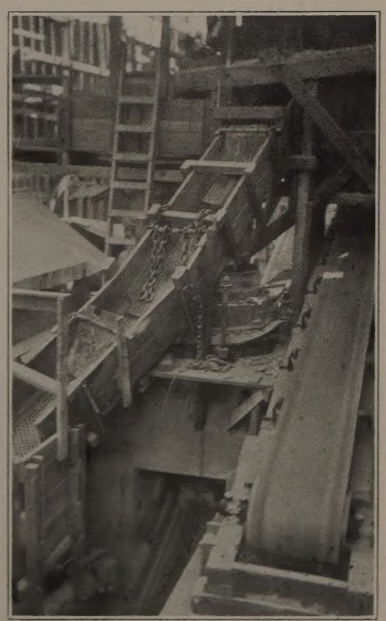
The trommel screen consists of two 10-ft. sections, one with 1¼-in. circular openings and the other with 1¾-in. The wire jacket is 9 ft. long and 72 in. in diameter and has ½-in. square openings. All material washed and screened through the jacket goes to the vibrating screen, which is equipped with 5/16-in. square wire cloth, the material passing going to the sand drags. All washing is done by sprays inside and out-



The primary gyratory crusher with belt-conveyor to scalping screen below.



The 4-ft. cone recrusher showing feed spout and drive.



The cone secondary crusher with belt-conveyors at right and below.

side the trommel screen and above the vibrating screen, the water pressure being 60 lb. per sq. in.

The gravel and sand sizes and nomenclature are as follows:

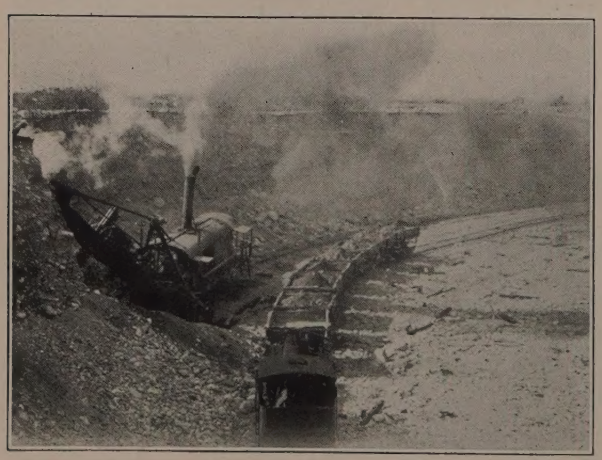
Gravel No. 1	3 in. to 1½ in.
Gravel No. 2	1½ in. to ¾ in.
Gravel No. 3	1 in. to ¼ in.
Gravel No. 4	½ in. to ⅛ in.
Sand	⅛ in. to 200-mesh.

Water for all purposes is supplied from a well located about ¾ mi. above the plant and is 26 in. in diameter and 300 ft. in depth. The casing is perforated with eight ¾ by 3-in. holes every 4 ft. throughout the entire depth. A 12-in. Layne & Bowler direct-connected turbine pump is used to lift the water into the gravity line to the plant. The capacity of this unit is approximately 1,200 gal. per min. The water is stored in a 500,000-gal. reservoir near the plant and a direct-connected Byron Jackson 2-stage centrifugal booster pump is used to furnish water and pressure for washing. Approximately 800 gal. per min. is used in this process.

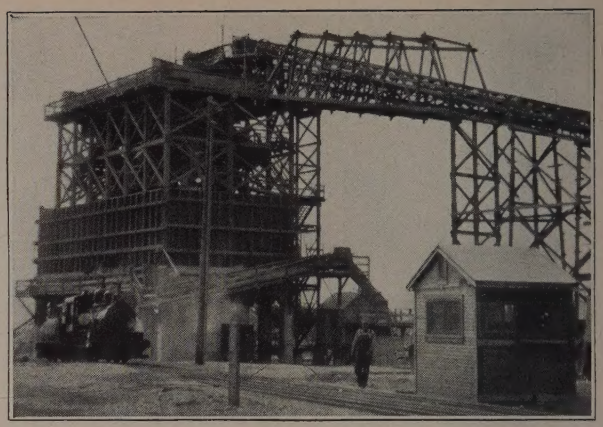
One of the features in the design of this plant which is of upmost importance in an unbalanced market, such as we are now experiencing, is the provision for recrushing and reducing to smaller sizes all standard products over 1 in. in size. This is accomplished by placing all such sizes in bins along one side with side gate openings near the bottom through which they may be fed to the horizontal belt-conveyor which returns them to the 4-ft. Symons cone crusher for reduction. This product is then returned to the screening plant by the crushed-rock conveyor.

Cars and trucks are loaded from the bottom of the bins. All material is weighed before being consigned, truck and railroad scales being provided for this purpose. The railroad scale is a 200-ton capacity Fairbanks unit with an 80-ft. deck equipped with dead rails.

Storing of material is carried on at all times as a balance to production and to assure an adequate supply in case of breakdown. The stock-piles are located below the plant on spur tracks built for that purpose. Loading from or to stock-pile is done by a Brownhoist steam locomotive crane having a 60-ft. boom and a 1¾-cu.yd. clam-shell bucket. Approximately 300,000 tons of various sizes is stored at all times.



The 2½-cu.yd. railroad-type steam shovel loading cars in pit.



The new Puente Largo plant of the Consolidated Rock Products Co. with scale house at right.

Most of the production from this plant is being used at the dam and is loaded into 40-ton bottom-dump steel cars. These are hauled to the contractor's storage piles at the mouth of San Gabriel Canyon, about 2½ mi. from the plant. A belt-conveyor in a tunnel under these stock-piles reclaims the materials and discharges them to bins which load the aërial tramway to the concrete-mixing plant at the dam. The aërial tramway was furnished by the American Steel & Wire Co. and has a capacity of 200 tons per hr. It is 10,200 ft. long and the buckets, spaced 250 ft. apart, travel at the rate of 500 ft. per min. The tramway buckets discharge to bins over the mixing plant. Two T. L. Smith mixers are used. Concrete is placed in the dam by two 4-cu.yd. buckets operating on a cableway spanning the canyon. This cableway is controlled from a tower near the mixing plant.

All repair work is done at the Puente Largo plant as it is centrally located among the other plants in the district owned by the company. A well-equipped blacksmith and machine shop, together with a supply warehouse, electric shop, and the office headquarters of the Eastern Division comprise the group of miscellaneous buildings. Glenn H. Moore, division superintendent, had charge of the construction of the plant and was assisted by W. W. Alexander, both working under the direction of L. L. Rogers, vice-president and manager of production for the company. The plant is the result of careful planning and designing by those in charge, all whom have had long experience in this field.

All the revolving screens or trommels used in this plant were furnished by the Allis-Chalmers Mfg. Co., and all the shaker screens by the Conveyor Co. of Los Angeles. Link-Belt conveyor idlers and pulleys, Pioneer conveyor belting and Stephens-Adamson sand-drag classifiers are used. A number of different makes of electric motors are used, including General Electric, Westinghouse and Allis-Chalmers.

Industrial Recovery Act Betters Outlook for Concrete-Units Business

Concrete Masonry Is Specified for Many Types of Federal Public Works

PASSAGE of the National Industrial Recovery Act has put new life into the concrete-building-units business. With practically no home building or factory building during the past three years, this industry, which during the "boom" years from 1923 to 1928 furnished approximately one-third of the masonry material in the United States, has taken on new life. Many projects contemplated under the huge public-works program created by the N. I. R. A. are direct markets for the concrete-block manufacturer. Government specifications now recognize this product, and in the construction of post-office, hospitals, storage warehouses, government court-houses, army barracks and houses for officers this material is given an even opportunity with others in the masonry field. During 1931 the federal government adopted a federal master specification for concrete masonry known as Specification No. SS-C-621. Because the industry has been vigorous in following through and asking the government to make full use of this specification, it is now a standard part of practically all government specifications in which masonry construction is involved.

During the past year many thousands of concrete masonry units have been used by various government departments in the construction of public projects. Concrete masonry is specified now by the Treasury Department for furring, fireproofing and partitions in all its post-office work designed in the office of the Supervising Architect. Last year the government revised its specifications so that concrete blocks may be used as back-up material for all exterior walls. This gives the manufacturer of concrete units an opportunity to bid on all this vast amount of public projects and opens a market to him that was closed some three years ago. In the construction of hospitals, schools and quarters the Bureau of Indian Affairs of the Department of the Interior has now specified concrete masonry in the majority of its projects. In many of these it is allowed as a load-bearing material in exterior walls. In many others it is allowed as a fireproofing material and for the construction of partitions on the interior of the building. In much of its work through the west and southwest this department has used bearing walls of concrete masonry units, which are later either painted with a cement paint or covered with stucco directly applied. This market is a tremendous one ahead, inasmuch as this department has been allotted over $2,000,000 for construction of new buildings under the public-works program.

In army construction concrete masonry is again specified for exterior walls, for fireproofing and for partitions. While at this writing the army program is not definitely set, it is known that concrete masonry will be given every consideration in the formulation of specifications. Last year, during the tremendous army-housing program, it was made a part of the specifications for all barracks and quarters, and many manufacturers of concrete masonry were given an opportunity to bid on this work. The army is asking some $135,000,000 to complete its housing program. If this program is approved by the public-works committee, of which Secretary Ickes is chairman, it will involve work in forty-five states and will also offer probably one of the largest individual markets for concrete masonry that has ever been open to producers in the United States.

The Department of Agriculture is also a user of concrete blocks and tiles, having constructed many of its warehouses and experimental laboratories of these materials. While the program of this department is not as large as that of some of the others, it is scattered over a wide area and presents an opportunity for manufacturers to sell their products for government projects.

Last year one of the most outstanding jobs constructed by the government was the Federal Penitentiary at Lewisburg, Pa. In this building several hundred thousand concrete masonry units were used for the construction of interior walls. The construction used in this building opens one of the greatest opportunities for the concrete-block manufacturer. These units were made of sand-and-gravel concrete, and as they were taken from the machine they were roughened and textured to give a pleasing and unusual appearance. The units were then stained in various colors and were laid in the wall in an ashlar pattern which added materially to their attractiveness.

One of the officers of the department, in speaking of this job, has been quoted as stating that the interior of this prison looked more like a cathedral than a prison, and although building costs were low for the type of structure he was afraid of being criticized because of the handsome appearance of the interior of the prison.

The manufacture of units such as were used in this construction is not difficult. In most cases no extra equipment is needed, other than that furnished with standard block machines, yet by varying the size of the units in the wall a more pleasing surface can be achieved, and by coloring and texturing much is added to the beauty of the finished wall.

Another market for concrete blocks that looms

on the horizon is that of home construction. Reliable statistics furnished by government authorities show that there is a shortage of over 500,000 homes in the United States.

This may seem like a broad statement when the number of vacancies in most communities is taken into consideration. The answer lies in the fact that many families have doubled up and that with the resumption of work their first move will be to start the undoubling process and move to single-family dwellings. This accumulated shortage has been accumulating during the last three years and has reached the point where, to housing experts, it is really alarming. By building attractive concrete-masonry homes, that can be either painted or stuccoed, the concrete-unit manufacturer is opening for himself a market which he touched but lightly in the housing "boom" which started in 1922. When this expansion started, most concrete-unit manufacturers were not "sales-minded" and felt that they had done a good job if they had sold only the basements in their communities. Since that time much work has been developed in the design of concrete-masonry houses and in the development of a market for them.

Many manufacturers have taken advantage of the present lull in business to study the housing situation and have been able to demonstrate conclusively that permanent concrete-block houses can be built at a cost that comes within the price range of the average house owner. They have demonstrated that by the use of stucco and by the use of paints the concrete-masonry house can be made to look more attractive than that constructed of any other masonry material.

The use of the ashlar type of masonry spoken of in connection with the Lewisburg prison has become quite prevalent in many communities and has changed the conception that many architects have had of concrete-masonry construction. Where units are laid up in ashlar patterns, textured and painted or stained, they present something that is so different and so unusual that wherever introduced they quickly catch the public fancy.

There has been much talk in the public press during the past year of the so-called prefabricated house. It is felt by those who know, that this vast amount of talk has had a depressing effect on the house-construction market. Many people who have been employed and who would have built houses have been waiting for these wonderful low-cost houses to come running down a production line much in the same manner that General Motors produces Chevrolets. After this waiting they are becoming convinced that perhaps the prefabricated house has not been developed as far as its originators would lead one to believe and are making plans to build of some other materials. This market is a tremendous one. It can be sold to a great extent by concrete-unit manufacturers.

Another factor that enters into the development of this market is the fact that many lending agencies in the past would not listen to the arguments of the concrete-block man stating that a house was undesirable from a resale standpoint, could be nothing but ugly and was certainly not livable. These people have learned that perhaps a house which seemed the most desirable in 1926 is far from being desirable to-day. While it looked attractive on the outside, it had no permanence built into its walls and has become a constant source of worry and care since the market has declined. These people have had to spend so much money for maintenance that they are casting about for a better type of construction—a type that has little depreciation and that will not require a costly yearly expenditure to keep it looking as good as the day it was built. The answer to this problem is the concrete house. It is a market that can be developed at the present time because of the attitude of the financing agencies after having experienced several years of constant expenditure for maintenance and repair.

With the resumption of business and many people going back to work there is bound to be a constantly-increasing market for other improvements. Factories are modernizing and putting on additions. The creation of new arterial roads under the $400,000,000 government program is creating new marketing spots for filling stations, for road-side stands and for other enterprises that cater to the ever-increasing hoard of motorists who traverse these highways. The concrete-units market contains many possibilities. These possibilities will be grasped and taken advantage of by the progressive manufacturer who has learned to merchandise and sell his product, who will advertise it intelligently and who will utilize imagination in developing jobs rather than wating for them to come to him.

Fluorspar Production in 1932

According to the United States Bureau of Mines, low operations in the industries using fluorspar and liquidation of the large stocks accumulated by consumers are reflected in the shipments of only 25,251 short tons of fluorspar in 1932, the smallest since 1901. Keen competition for the small business offered, production in excess of requirements during the last few years, and low cost output of considerable fluorspar from shallow workings in Kentucky resulted in drastic reductions in the selling prices of domestic fluorspar. The selling price of metallurgical gravel fluorspar f.o.b. Illinois-Kentucky mines in 1932 declined $6 a ton, acid lump fluorspar $8 a ton, and ground fluorspar $12 a ton.

In 1932 the shipments of domestic fluorspar were 53 per cent. less than in 1931 and were 77 per cent. below the average for the 5-year period 1927-1931. Imports into the United States in 1932 were 36 per cent. less than in 1931 and were 74 per cent. below the average for the 5-year period 1927-1931. The average selling price of fluorspar sold by domestic producers to steel plants in 1932 was $2.03 a ton less than in 1931 and $3.89 a ton below the average for the preceding five years.

Illinois Gravel Plant Installs System for Removal of Compacted Clay

Uses Combination of Roll-Crusher Log-Washer and Vibrating Screens

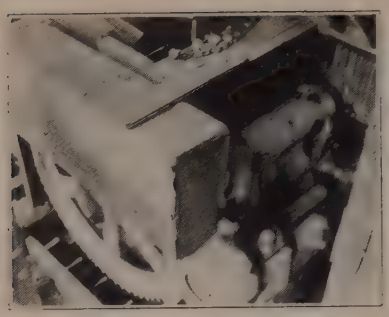
By W. E. TRAUFFER

THE flexibility and adaptability to changing conditions of a well-designed plant operated by a progressive company is well illustrated by the plant of the Springfield-Pekin Sand & Gravel Co., Pekin, Ill. This plant was built originally in 1925 as a sand-and-gravel crushing, washing and screening plant using a dredge with a plain suction nozzle. It was designed by W. H. K. Bennett and most of the equipment was furnished by the Link-Belt Co. The original equipment was entirely satisfactory until 1928, when clay and compacted gravel were encountered in the deposit. First a rotary cutter-head was installed on the dredge and later, as conditions became worse, a cutting ladder was substituted. Early in 1932, because of changes in the highway-material specifications, a vibrating screen replaced the original revolving scalping screen. In the autumn of that year the clay became a real problem and several methods of removing it satisfactorily were tried without success. Finally, in the spring of 1933, the present system using a roll-crusher, log-washer and additional vibrating screens was installed and proved to be entirely satisfactory. This new system went into operation on June 1. The plant has a capacity of about 42 carloads of material daily.

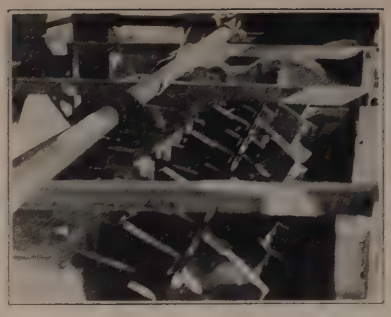
The Springfield-Pekin plant is on a property of 40 acres, located 1 mi. south of Pekin, Ill. Material is dredged to a depth of 35 ft. below water-level, which is 18 ft. below ground-level. The overburden of friable soil is negligible and is caved in with the gravel.

The dredge is of the usual type with a timber hull and super-structure and has an elevated control room to give the operator a better view. The W. H. K. Bennett Diamond cutting ladder is driven through Link-Belt silent chain and gear by a 20-hp. Allis-Chalmers motor. The 12-in. Amsco dredge pump is driven by a 400-hp. Allis-Chalmers continuous-duty induction motor. The ladder and nozzle and shore-lines are handled by a 5-drum Clyde hoist driven by a 15-hp. Allis-Chalmers motor. The operator controls the hoist by rods and levers from

The plant of the Springfield-Pekin Sand & Gravel Co., with new washer building at left. Dredge discharge-pipe at extreme left, cars being loaded at right.



The single roll-crusher over the log-washer.



The double log-washer with spray-pipe above.

One of the vibrating screens used for final sizing.

the control room and also controls all other equipment on the dredge.

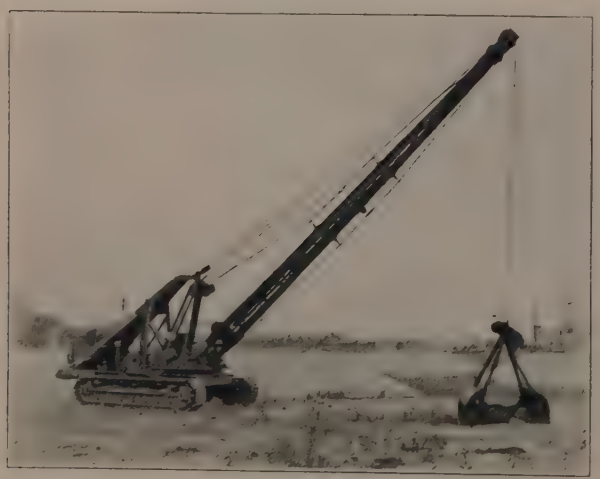
The dredge pumps the material a distance of about 900 ft. to the plant and elevates it about 50 ft. The dredge-line discharges to a 4-ft. by 12-ft. dewatering flume at the top of the clay-washing plant. This discharges through a chute to a 4-ft. by 8-ft. Simplicity single-deck vibrating scalping screen, which has two sizes of Ludlow-Saylor Rek-Tang wire cloth, ¾-in. on the top and 1½-in. on the bottom.

The oversize material from this screen is discharged to a McLanahan & Stone 22-in. steel-strut single-roll crusher which reduces it to 1½ in. and under. Both the material passing through the screen and the product of the crusher are fed into an improved McLanahan & Stone 25-ft. double steel log-washer having welded square logs, each of which has a separate drive operating in a steel box. This breaks the clay loose from the gravel and disintegrates it so that it overflows with the wash-water. All the sand and gravel is discharged to a 2-ft. by 3-ft. Simplicity single-deck vibrating screen fitted with 1½-in. cloth, when Class X or bridge gravel is being made, and with 2-in. cloth for paving gravel. The oversize material from this screen is fed to a Link-Belt chain-bucket elevator which has 12-in. buckets and returns the material to the roll-crusher.

The roll-crusher is driven through a Gates V-belt and a cut-steel gear by a 15-hp. Allis-Chalmers motor. The log-washer is driven by a 35 50-hp. General Electric motor through Gates Vulcorope and inclosed gears running in oil. The vibrating screens are driven through Dodge V-belts by 5-hp. and 1-hp. Howell motors respectively, and the bucket-elevator by a 5-hp. General Electric motor through Link-Belt silent chain and gear.

The washed gravel and sand passing through the last-mentioned screen are discharged to a concrete sump-box between the washing plant and the screening-and-storage building. Two chain-bucket elevators, each with 104 3-cu.ft. buckets, elevate the material to the screening plant, giving it an additional washing in the sump in the process. The elevators discharge to two sets of three Link-Belt conical screens having 1¼-, ⅝- and ¼-in. perforations respectively. The ⅝-in. material can go directly to storage or can be diverted over a pair of 2-ft. by 3-ft. Simplicity single-deck vibrating screens which remove any additional ¼-in. material. The minus ¼-in. material from the revolving screens passes through flumes which have ⅛-in. slotted perforations and remove masons' sand. The flumes discharge to two series of three Link-Belt sand-settling cones, which produce concrete-mix, fine and torpedo sands.

Each of the two elevators is driven by a 50-hp. Allis-Chalmers motor through Link-Belt silent chain and gear. The elevator buckets are the Link-Belt renewable-tip type, W. H. K. Bennett chain



Small crane used for rehandling to and from stock pile to trucks.

The ¾-cu.yd. crawler crane loading to railroad cars from stock.

The 12-in. hydraulic dredge which is equipped with a cutting ladder.

links being used. Each set of conical screens is driven by a 25-hp. Allis-Chalmers motor through Link-Belt silent chain, roller chain and bevel gears. Each of the vibrating screens is driven by a 1-hp. Howell motor through Dodge V-belt. Wash-water is furnished to the log-washer and the sizing screens from a near pond by a Dayton-Dowd centrifugal pump.

The materials produced—torpedo sand, fine sand, ¾-in. road gravel, bridge gravel, and road gravel—are stored in five riveted-steel-tank storage bins. The three smaller bins for the smaller sizes of materials have live capacities of 2 carloads each and the two larger bins of 3 carloads each. The space between the adjoining large and small bin is inclosed with timber, forming an additional bin which is used for buckshot and has a live capacity of 1½ carloads. Each bin has a drop-chute gate on each side for loading cars or trucks.

The bulk of the material produced is shipped by the C. & I. M. Ry. and the Peoria Ry. Terminal which makes connections to all lines. Material is unloaded from cars into stock-piles and later reloaded into cars and trucks for shipment by a Northwest gasoline crane handling a ¾-cu.yd. clam-shell bucket and a Bay City gasoline shovel handling a ⅜-cu.yd. Owen bucket loads from stock-piles into trucks for local deliveries.

With the upturn in highway construction and the growing demand for aggregates for other types of construction the company finds itself in a favorable position. All the thousands of tons of material stock-piled is already sold and the entire output of the plant for practically the balance of the season is already contracted for.

The main office of the Springfield-Pekin Sand & Gravel Co. is at 420 Public Service Bldg., Springfield, Ill. The company's officers are: M. D. Schaff, president; D. H. O'Keefe, secretary and treasurer. C. L. Preston is plant superintendent.

The conical revolving screens and sand-settling tanks on the main plant building.

June Construction Contracts

Construction contracts of all descriptions awarded in the 37 states east of the Rocky Mountains during June totaled $103,255,400 according to F. W. Dodge Corp. This was a gain of almost 34 per cent. over the total of $77,171,700 shown for May. During June of last year the contract volume amounted to $113,075,000.

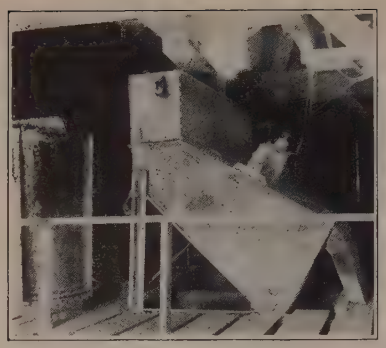
Breaking the June, 1933, contract total down, reveals a total of $74,434,400 for privately-financed undertakings as distinguished from the total of $28,821,000 for publicly-financed work. The total of private work during June compares with only $53,487,500 for May and $48,806,800 in June, 1932.

Showing a further distribution of last month's awards as between major structural classifications, the current report gives a June total of $27,793,200 for residential building as against $26,519,700 for May, and only $23,116,200 for June, 1932; non-residential building awards during June amounted to $51,024,400 as compared with $31,639,400 for May and $39,812,600 for June, 1932; awards for public works and public utilities during June, 1933, totaled $24,437,800 as against $19,012,600 for May and $50,146,200 for June of last year.

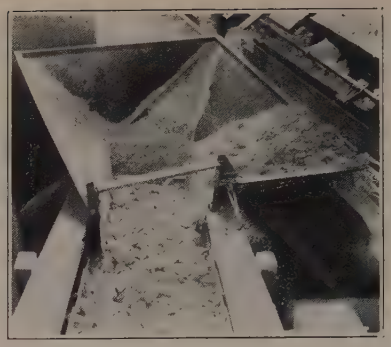
Asphalt Production in 1932

Production of asphalt, exclusive of road oil, at petroleum refineries in this country, amounted to 2,474,919 short tons last year, compared with 2,975,690 short tons in 1931, according to the Department of Commerce. The decrease of 16.4 per cent. in the domestic demand for petroleum and lake asphalt was met by a curtailment of 16.8 per cent. in refinery production of petroleum asphalt, the Department adds.

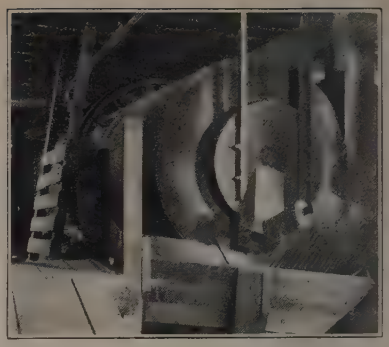
Asphalt stocks held by refineries amounted to 298,684 short tons on last December 31, compared with 304,623 short tons on the like date the year before. Imports, chiefly of lake asphalt and grahamite, dropped from 73,672 tons in 1931 to 20,473 tons in 1932.



The two electric vibrating screens with separator at left.



Car discharging to movable hopper on pan-conveyor.



The 5-ft. by 30-ft. rotary drier for wet materials.

F. E. Schundler & Co. Add to Facilities for Grinding and Processing

New Equipment Gives Greater Capacity and Wider Range of Sizes and Materials

THE custom-grinding of nonmetallic minerals is an industry in which comparatively few plants are engaged but which, nevertheless, requires a wealth of experience and research on the part of those engaged in it. Many different types of materials must be crushed, ground and sized, each to different specifications. It is quite fitting, therefore, that such plants use only the best equipment and subject their operations to strict laboratory control.

F. E. Schundler & Co., Joliet, Ill., while no longer in the custom-grinding business, come under this classification as far as their processing is concerned. The difference is that this company either purchases its raw materials outright or obtains them from properties which it owns or in which it has an interest. All products are sold direct to the user.

The company was started in 1914 by F. E. Schundler, president, first engaging in the production of magnesite in the East. In 1916 a magnesite-grinding plant was opened in Joliet, custom-grinding being done to fill in. As business increased the company constantly added new products and finally discontinued custom-grinding almost entirely. The company now grinds magnesite, talc, barytes, soapstone, kieselguhr, soft silica, kaolin, bentonite, fullers' earth, feldspar, chalk and various clays, limestones, dolomites and marbles. The customers who buy these materials are mainly manufacturers of rubber, paints, automobiles, paper, etc., foundries and building industries.

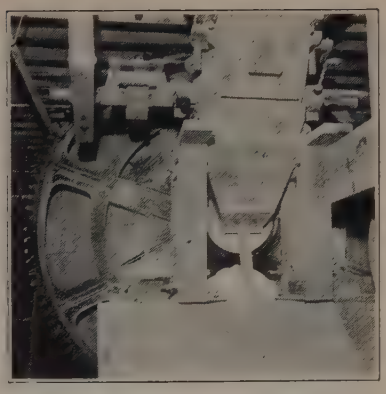
The company is also sales representative east of Rocky Mountains for crude and caustic calcined magnesite for the Sierra Magnesite Co. It also has

Part of the plant of F. E. Schundler & Co., Joliet, Ill. Water tower for sprinkler system at left.

The series of shuttle conveyors which distribute raw material to storage or drier bins.

Auxiliary jaw crusher used when main siding is busy.

Rotary crusher which recrushes product of jaw crusher at left.



The 30-in. by 8-ft. conical mill used for final grinding.

an arrangement with the Zonolite Co., Libby, Mont., with exclusive rights for the sale of zonolite east of Mississippi River. This material is purchased outright and expanded and sized at the plant.

The original plant was gradually enlarged and in December, 1928, was almost completely destroyed by fire. Although this plant was covered by insurance, the fire entailed a considerable loss to the company as it occurred during the busiest season in its history. The plant was immediately rebuilt on the same scale with all new equipment. Shortly afterward the zonolite department was added. Recently a third Raymond mill, a Hardinge conical mill, a Universal Road Machinery Co. jaw crusher and other accompanying equipment were installed. Additional bins and vibrating screens will be added later.

Raw materials have always been received at the plant by railway or motor trucks, but arrangements are now being made to handle waterway shipments on the lakes-to-gulf waterway on the banks of which the plant is located. A small Bucyrus gasoline crane will unload from barges into a small bin building. This will discharge to trucks for delivery to the regular plant hoppers.

The Main Plant.—The raw material comes to the plant by either railway or trucks. That which requires crushing is discharged to a movable hopper feeding a Stephens-Adamson 24-in. by 35-ft. inclined pan-conveyor. This discharges to a Dixie non-clog hammer-mill of 50 tons per hr. capacity which reduces the material to 1-in. size and under. An 8-ft. bucket-elevator takes the crushed material to the distributing conveyors over the storage-bins. The material which does not require crushing is dumped to another hopper and is fed by belt-conveyor to another bucket-elevator which feeds the same distributing conveyors. Cars on the unloading track are "spotted" by a Stephens-Adamson car-puller.

Two reversible shuttle conveyors and a third stationary distributing belt-conveyor, which is also reversible, feed the material, if dry, to a 12-compartment timber storage-bin which has a total capacity of 2,500 tons. Materials which are not as dry as they should be for efficient grinding are fed by the distributing conveyor to another belt-conveyor which discharges to any of four compartments of a 500-ton storage-bin in the drier building.

The drier bins feed to either one or both of two semi-indirect, coke-fired rotary driers. One is a 5-ft. by 30-ft. Ruggles-Coles unit and the other a 3-ft. by 30-ft. Christy. Both driers discharge to a series of two belt-conveyors feeding a Jeffrey bucket-elevator which discharges to the grinding-mill feed bins. There are 12 of these with a capacity of 100 tons each. The storage-bins mentioned earlier in this article feed a belt-conveyor in the basement of the plant. A Stephens-Adamson

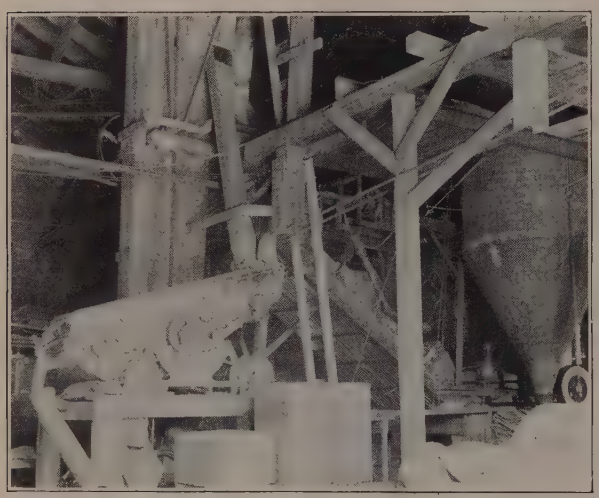
The mill room with one of grinding mills at left; bagging spout and dial scale in center.

bucket-elevator feeds the material to the same mill-feed bins in which the dried materials are stored.

The mill-feed bins discharge through chutes and feeders to two Raymond high-side roller kiln mills, each of which has two oil-fired furnaces. They also formerly fed directly an Allis-Chalmers 5-ft. by 22-ft. tube-mill. Under the new arrangement, however, the bins now feed the two Raymond mills, and a 30-in. by 8-ft. Hardinge conical mill and the new-type Raymond kiln mill which were recently installed. The Hardinge mill is now used for pre-

grinding and discharges by elevator to two Tyler 4-ft. by 5-ft. Hum-mer screens and a Raymond 10-ft. mechanical separator. The oversize material goes to the tube-mill for finish grinding and the product is bagged through spouts.

The new Raymond mill is equipped with the new Wizard separators, dust-collector, cyclone, blower, and 2 new furnaces. The other two Raymond mills are connected to tubular dust-collectors and cyclones, and the tube-mill is connected to a 3-unit Sly dust-arrester which also serves the entire grinding plant. Materials are bagged through spouts or can



Interior of the zonolite plant. Vibrating screen and elevator at left, expanding furnace in background, cyclone-type loading spout and scale at right.

be delivered by screw-conveyor directly into cars for bulk shipment. This flexible grinding arrangement allows any desired size of product to be made from 90 per cent. through 200-mesh to 100 per cent. through 325-mesh.

A second siding between the grinding and drier buildings allows cars to unload directly into a 16-in. Telsmith jaw crusher. A belt-conveyor and elevator in series feed the same mill-feed bins described above. If a finely-crushed product is desired, the belt-conveyor can feed a Sturtevant rotary crusher which discharges to the same elevator. It is planned to change this arrangement in the near future. The Universal Road Machinery Co. jaw crusher now on hand will be installed as a primary crusher and will feed the Telsmith jaw crusher for further reduction. If further reduction is desired, the material will be passed through the Sturtevant crusher.

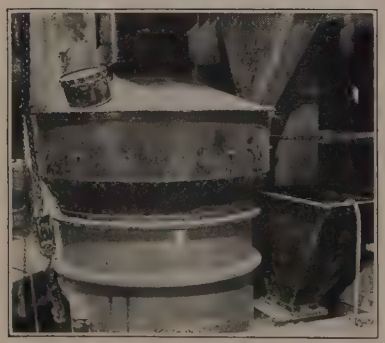
At the far end of the main plant is a processing unit which is entirely separate from the other equipment. This consists of a small tube-mill which was originally installed for grinding and blending pigments for roofing granules. It is now used mainly for special grinding on small orders. Material is fed to the mill from sacks and the product is handled in barrows.

A large section of the grinding-and-storage building is used for a chemical and physical testing laboratory. This is equipped for any inorganic chemical work, nonmetallic-mineral analysis, etc., and also has complete physical testing equipment. In addition to the usual equipment there is a setting machine, a Tyler Ro-Tap sieve shaker, a Buhr mill, several mechanical mixers, gas and electric furnaces, a Fairbanks tensile tester, a Federal sand-strength machine, a Simpson foundry mixer, a Patterson Foundry and Machine Co. miniature ball-mill, a McKinney Iron Works hydraulic press, etc. An interesting machine which is used considerably is a Weatherometer of a type designed by the U. S. Bureau of Standards, used for making accelerated weathering tests. This machine subjects materials to artificial daylight, rainfall, freezing, etc., providing the equivalent of months of exposure to the elements in a few hours' time.

The major plant buildings are of varied types of construction. Most of them are built entirely of wood or have a wood framework with corrugated-metal siding and roofing. Several of the smaller buildings are built of concrete blocks or stone. All have concrete foundations. A Grinnell dry-type sprinkler system throughout all buildings furnishes fire protection. Water for all purposes comes from the city mains and is stored in a 30,000 gal. tank.

Most of the bucket-elevators in the plant and all the belt- and screw-conveyors were furnished by the Stephens-Adamson Mfg. Co. Some bucket-elevators were furnished by the Jeffrey Mfg. Co. With a few exceptions, the electric motors and equipment were furnished by the General Electric Co. Toledo dial scales and Fairbanks platform scales are used in the plant.

(*Continued on page 35*)



The new high-side roller-mill with new type of separator.

Dust-collecting system in grinding building, screens at left.

The cyclone for the new high-side roller-mill.

Code of Mineral-Aggregates Industries Adopted at Chicago Meeting

Will Be Submitted to Government and Should Become Effective by Sept. 1

THREE hundred and eighteen representatives of 270 producers of crushed stone, sand and gravel, and slag registered at the code-convention meetings of the mineral-aggregate industries held at the Palmer House, Chicago, July 13 to 15.

These producers have a combined annual production capacity of more than 69,774,900 tons of crushed stone, 112,129,000 tons of sand and gravel, and 9,480,000 tons of slag. They came from practically every producing area in the country, and they operate plants in 37 of the 48 states. Although no accurate and complete data respecting the total national production capacity of each industry are available, it is evident from the figures just mentioned that each industry was well represented. The accompanying list and table indicate the extent to which each region and state was represented in each industry. The list also shows to what degree producers not affiliated with the national trade associations were represented, as well as their relative importance measured in terms of production capacity.

On July 12 the Boards of Directors of the National Crushed Stone and National Sand & Gravel Associations met separately. Routine matters of business were dispatched quickly and thereafter questions concerning the code monopolized their attention. The following morning (Thursday) producers of mineral aggregates—those who were members of the associations as well as those who were not—convened in separate meetings to consider the tentative code, which was published in full in the July issue of PIT AND QUARRY. Otho M. Graves, president of the General Crushed Stone Co. (Easton, Pa.) and former president of the National Crushed Stone Assn., presided at the crushed-stone meeting. John Prince, president of the Stewart Sand & Material Co. (Kansas City, Mo.), was chairman of the sand-and-gravel meeting. The slag meeting was conducted by C. L. McKenzie, president of the Duquesne Slag Products Co. (Pittsburgh, Pa.) and president of the National Slag Assn.

Each of these meetings considered the "tentative" code section by section, and made such changes as it thought proper. Every suggestion which was offered on the floor was put to a vote. Each group appointed representatives to serve on a General Committee, to which was delegated the duty of reconciling differences of opinion arising from the separate discussions and action of each meeting as well as that of preparing a revised draft of the code for final consideration by all three industries at the joint meeting on Friday. The General Committee, having been given power to enlarge itself, appointed sub-committees composed of men from each of the three industries to consider and act upon all the changes proposed and to report recommendations to the General Committee. The composition of the committees is shown in Table I.

The sub-committees met Thursday night and most of them remained in session until the following morning. Producers who wished to offer suggestions or protests appeared before these committees and their ideas were freely discussed. The resulting recommendations were presented to the General Committee at or after midnight, and the latter's revised draft was offered to the combined general meeting Friday.

Each section was then discussed and voted upon, but a few topics, such as the division of the country into regions and the rates of pay, were referred back to the sub-committees which met immediately after the close of the general session.

It soon became evident that the problems were too serious to be solved quickly, so the general meeting set for Friday night was postponed until Saturday. The sub-committees' suggestions having been acted upon by the General Committee Friday night, the latter presented its report Saturday. The code was then voted upon section by section, and was finally adopted Saturday afternoon without a single dissenting vote.

After receiving the benefits of editorial and legal revision, the code will be submitted informally by the Committee on Organization (Otho M. Graves, chairman), to Gen. Johnson, and a request for a formal hearing will then be made. Whatever changes in the code may be suggested by Gen Johnson at this informal hearing will be made by the committee, which was empowered by the Chicago meeting to act. Every producer who desires to attend the formal hearing may do so.

The accompanying list shows the names and addresses of all the producers registered at the Chicago meetings; the names of the individuals representing them there; and the number and combined annual production capacity of all the aggregate plants of each producer arranged by states. CrSt indicates crushed stone, SG sand and gravel, and Slag blast-furnace slag. Membership in the national trade associations is indicated by an asterisk (*) for the National Crushed Stone Assn., a dagger (†) for the National Sand & Gravel Assn., and a double dagger (‡) for the National Slag Assn.

The *Proposed Code of Fair Competition for the Crushed Stone, Sand-and-Gravel, and Slag Industries*, as approved and adopted by those present at

the Chicago meetings, follows. The portion headed "Statement," which in its original form was Article I, Preamble of the "tentative" code, printed on pages 21 to 25 and 50 of the July issue of PIT AND QUARRY, is now offered as a separate document that will be submitted to the National Recovery Administration along with, but not as a part of, the "proposed" accepted code. To avoid repetition, only the new and altered old portions of the final code will be given below, reference being made to the last citation for those portions which were not changed. New material and changes are shown in italics.

STATEMENT

[The word "Section," which preceded each numbered paragraph of Article I in the "tentative" code, has been eliminated.—ED.]

1. *The accompanying* code of fair competition for the crushed-stone, sand-and-gravel, and slag industries is submitted in behalf of the three industries by the National Crushed Stone Assn., the National Sand & Gravel Assn., and the National Slag Assn.

2, 3 and 4. [Unchanged.]

5. . . .

Among the principal uses of the products of these industries are the following: highway, street, and road construction; building construction; railroad ballast; *flux stone; agricultural limestone; rubble stone; riprap stone; asphalt filler; foundry sand; abrasive sand and gravel; engine sand; filter sand and gravel; glass sand; trickling filter medium; slag wool; agricultural slag; roofing granules; and other uses.*

6, 7 and 8. [Unchanged.]

9. . . . The combination of a rapidly-*diminishing* demand

MINERAL-AGGREGATES CODE-MEETING COMMITTEES

GENERAL COMMITTEE

Crushed Stone

Otho M. Graves, Chairman
(Pres., General Crushed Stone Co.)
J. R. Boyd
(Sec., National Crushed Stone Assn.)
Russell Rarey
(Vice-pres., Marble Cliff Quarries Co.)
W. R. Sanborn
(Vice-pres., Lehigh Stone Co.)
Stirling Tomkins
(Vice-pres., New York Trap Rock Co.)
A. L. Worthen
(Vice-pres., Connecticut Quarries Co.)

Crushed Stone and Sand and Gravel

John Prince
(Pres., Stewart Sand & Material Co.)

Sand and Gravel

Alex Foster, Jr., Vice-Chairman
(Vice-pres., Warner Co.)
V. P. Ahearn, Secretary
(Exec. sec., National Sand & Gravel Assn.)
R. C. Fletcher
(Vice-pres, Flint Crushed Gravel Co.)
H. V. Owens
(Pres., Eastern Rock Products Co.)
Robert J. Potts
(Pres., Potts-Moore Gravel Co.)
F. J. Twaits
(Pres., Consolidated Rock Products Co.)

Slag

H. J. Love
(Sec.-treas., National Slag Assn.)
C. E. Ireland
(Pres., Birmingham Slag Co.)
C. L. McKenzie
(Pres., Duquesne Slag Products Co.)

SUB-COMMITTEES

Article I—Preamble and Article VIII—Economic and Engineering Research

Crushed Stone

Warren Rowe
(Pres., Rowe Contracting Co.)
H. S. Gray
(Sec.-treas., Louisville Cement Co.)
William E. Hilliard
(Gen. mgr., New Haven Trap Rock Co.)

Sand and Gravel

T. E. McGrath
(Vice-pres., McGrath Sand & Gravel Co.)
F. W. Peck
(Pres., Peck-Thompson Sand & Material Co.)
M. A. Neville
(Vice-pres., Western Indiana Gravel Co.)

Slag

H. J. Love
(Sec.-treas., National Slag Assn.)

Article II—Definitions

Crushed Stone

Irving W. Wortman
(Pres., North Jersey Quarry Co.)
T. P. Black
(Black White Lime Co.)
H. E. Billman
(Pres., Rock Hill Quarries Co.)
E. J. Krause
(Pres., Columbia Quarry Co.)

Sand and Gravel

J. L. Shiely
(Pres., J. L. Shiely Co.)
C. H. Anderson
(Vice-pres., Anderson Sand & Gravel Co.)
Otto S. Conrades
(Pres., St. Louis Material & Supply Co.)

Slag

L. E. McDermut
(Pres., Illinois Slag & Ballast Co.)

Article III—Organization and Administration

Crushed Stone

Ben F. Dickinson
(Vice-pres., Big Rock Stone & Material Co.)
A. S. Lane
(Treas., John S. Lane & Son)
John Prince
(Pres., Stewart Sand & Material Co.)
Harry Brandon
(C. C. Beam, Inc.)
Jos. D. Baker, Jr.
(Sec.-treas., Standard Lime & Stone Co.)

Sand and Gravel

Charles Warner
(Pres., Warner Co.)
C. G. Cooley
(Pres., Cooley Gravel Co.)
(Name of two other members not available)

Slag

H. N. Snyder
(Sec.-treas., Buffalo Slag Co.)
J. E. Cashion
(Pres., Cashion Slag Co.)

Article IV—Hours of Labor and Rates of Pay

Crushed Stone

John Rice
(Ch. Bd., General Crushed Stone Co.)
L. J. Boxley
(Pres., Blue Ridge Stone Corp.)
W. F. Wise
(Pres., Southwest Stone Co.)
H. F. C. Pelsue
(Graham Bros., Inc.)
E. Eikel
(Gen. Mgr., Servtex Material Co.)
B. A. McKinney
(Gen. Mgr., West Roxbury Trap Rock Co.)

Sand and Gravel

E. Guy Sutton
(Vice-pres., Neal Gravel Co.)
L. T. McCourt
(Vice-pres., Greenville Sand & Gravel Co.)
Paul P. Bird
(Pres., Boston Sand & Gravel Co.)

Slag

C. L. McKenzie
(Pres., Duquesne Slag Products Co.)

Article V—Basis for Fair Selling Price
Article VI—Limitations on Plant Capacity and New Production

Crushed Stone

Wm. M. Andrews
(Gen. Mgr., Union Limestone Co.)
John W. Stull
(Pres., Liberty Limestone Corp.)
C. D. Ward
(Ohio & Indiana Stone Co.)
F. O. Earnshaw
(Pres., Carbon Limestone Co.)
W. L. Sporborg
(General Crushed Stone Co.)

Sand and Gravel

F. D. Coppock
(Pres., American Aggregates Corp.)
F. W. Renwick
(Pres., Chicago Gravel Co.)
Anderson Dana
(Sec., Seaboard Sand & Gravel Co.)
Stephen Stepanian
(Vice-pres., Arrow Sand & Gravel Co.)
A. J. O'Connor
(Koenig Coal & Supply Co.)

Slag

C. E. Ireland
(Pres., Birmingham Slag Co.)

Article VII—Unfair Competitive Practices

Crushed Stone

J. A. Rigg
(Sec.-treas., Acme Limestone Co.)
Chas. H. Young
(Chas. H. Young Co.)
T. I. Weston
(Pres., Weston & Brooker Co.)

Sand and Gravel

Henry R. Battjes
(Pres., Grand Rapids Gravel Co.)
H. P. Caldwell
(Ohio River Sand Co.)
H. E. West
(West Sand Co.)

Slag

W. H. Kilcawley
(Sec.-treas., Standard Slag Co.)
K. A. Dietrich
(Great Lakes Steel Corp.)

Regions

Crushed Stone

W. R. Sanborn
(Vice-pres., Lehigh Stone Co.)
A. T. Goldbeck
(Director, Engineering and Research, National Crushed Stone Assn.)
E. R. Atwood
(Gen. Mgr., Old Colony Crushed Stone Co.)
B. S. Campbell
(Pres., Harry T. Campbell Sons Co.)

Sand and Gravel

Alex W. Dann
(Pres., Keystone Sand & Supply Co.)
Earl Zimmerman
(Vice-pres., Ohio Gravel Co.)
W. W. Fischer
(Central Sand & Gravel Co.)
H. F. Curtis
(Pres., Curtis & Hill Gravel & Sand Co.)
O. J. Ellingen
(Vice-pres., H. D. Conkey & Co.)

Slag

E. J. Flad
(Carnegie Steel Co.)
George A. Mattison, Jr.
(Vice-pres., Woodstock Slag Co.)

and *the existence of plants* capable of producing even more than is required in normal times brought on a destructive price competition which has exacted a heavy economic toll. Our industries found themselves no longer able to furnish steady employment; our businesses have been operated *generally* out of capital and not out of profit during the last year or more. . . .

10. [Unchanged, except for the elimination of the words "We recognize that the National Recovery Board is not disposed toward giving industry permission, in unlimited terms, to control prices and to regulate production, and probably, in some instances, price and production control is not desired; but."]

11. . . .

It is absolutely essential to the complete success of our code of fair competition that the production of our materials by government agencies be discontinued. [Old words "If our industries expose themselves through the operation of the code to higher production costs, thus increasing the disparity of costs due to the failure of such governmentally-operated plants to make proper allowance for depreciation, depletion, taxes, *compensation and liability insurance*, and other charges involved in privately-conducted operations, our producers will be placed at a more severe disadvantage than even the present conditions impose. [Succeeding sentence omitted.] In this connection it should be remembered that the principal markets of our three industries this year will be public works, private construction, at least at this moment, being insignificant in its proportions. . . .

12 and 13. [Unchanged.]

ARTICLE I

Preamble

In compliance with the National Industrial Recovery Act, the crushed-stone, sand-and-gravel, and slag industries, jointly and severally, adopt this code for the purposes of increasing employment, establishing fair and adequate wages, reducing the hours and improving the standards of labor, and preventing overproduction and the practice of unfair trade methods, to the end that these industries may be rehabilitated and do their part toward establishing that balance of labor and industries generally which is necessary to the public welfare.

ARTICLE II

Definitions

SEC. 1. *Crushed-Stone Producer.*—As used in this code, a "crushed-stone" producer is considered to be *a person, firm, corporation, or association engaged* in the quarrying, and/or crushing, and/or processing of stone for *any and all purposes.* [Succeeding old sentence omitted.]

SEC. 2. *Sand and Gravel Producer.*—As used in this code, a "sand-and-gravel" producer is considered to be *a person, firm, corporation or association engaged* in the recovery and/or processing of sand and/or gravel for *any and all purposes.* [Succeeding old second sentence omitted.]

SEC. 3. *Slag Producer.*—As used in this code, a "slag" producer is considered to be *a person, firm, corporation, or association engaged* in the recovery and/or processing of air-cooled slag resulting from blast-furnace operations. [Succeeding old second sentence omitted.]

ARTICLE III

Organization and Administration

SEC. 1. *Administrative Regions.*—For the purposes of administration *the United States shall be divided into sixteen administrative regions as indicated in* the tabulation and map *shown* in Appendix I. Appendix I is hereby constituted a part of this code.

SEC. 2. *Regional Subdivisions.*—Each administrative region may be divided into *subdivisions to be Known as "Districts" to facilitate local organization and enforcement and to provide suitable self-determination of local issues, within the provisions of the code and general rulings of the Regional and National Committees. The producers supplying material in any marketing area within a region may establish such area as a district, subject to final approval of the Regional Committee. Members of the district committee shall be elected in the same manner as members of the Regional Committee as provided in Sec. 6(a) of this article.*

Where natural marketing areas overlap in two or more regions, districts may be organized subject to approval of the Regional Committees affected.

SEC. 3. *Administrative Committees.*

(a) *National Administrative Committee*— . . . This committee shall consist of *a representative of the crushed-stone industry and a representative of the sand-and-gravel industry from each administrative region, and also a representative of the slag industry from any administrative region in which slag is produced; together with twelve representatives at large and six ex-officio members comprising* the president and one staff member of each of the national associations sponsoring this code.

The elective members of the National Administrative Committee from each region shall be elected by the Regional Committees of the respective regions. The representatives of each industry on the Regional Committee shall elect a representative to the National Administrative Committee. The twelve representatives at large shall be selected by the elective members of the National Administrative Committee. Of the twelve representatives at large, however, not less than one shall be chosen from the eastern states, not less than one from the central states, and not less than one from the western states, and not less than one from the southern states.

The National Administrative Committee shall make provision for representation of affiliated industries from the twelve representatives at large.

(b) *National Control Committee.*—The National Control Committee shall consist of *fifteen* members appointed by the National Administrative Committee, six of whom shall be the *ex-officio* members of that committee. . . . *The National Control Committee shall refer for hearing and determination questions exclusively affecting any particular industry or industries to the members of its committee representing said particular industry or industries respectively. Such members shall then act as a sub-committee with power to hear and determine the question in dispute for the entire National Control Committee.*

(c) *Regional Administrative Committees.—Each of the industries sponsoring this code and actually producing materials in a region shall elect in the manner prescribed in Section 6 (d) of Article III an odd number of its own members on the Regional Committee, which shall have equal representation thereon for each industry actually producing in that administrative region. The Regional Committee shall refer for hearing and determination questions exclusively affecting any particular industry or industries to those members of its committee elected thereon by said particular industry or industries respectively. Such members shall then act as a sub-committee with power to hear and determine the question in dispute for the entire Regional Committee. This committee shall be equitably representative of the small, intermediate and large producing companies within the region, and of all of the industries coming under this code, with not more than one representative from a single company, but a producer or producers may have more than one representative when it is necessary to give voting parity to that industry or industries represented by that producer or producers.*

(d) *District Committees.—Each of the three industries actually supplying materials in a district shall elect in the method hereinafter prescribed an odd number of its own members to the district committee, which shall have equal representation thereon for each industry actually supplying materials in that respective district. The district committee shall refer for hearing and determination, questions exclusively affecting any particular industry or industries to those members of its committee elected thereon by the said particular industry or industries respectively. Such members shall then act as a sub-committee with power to hear and determine the question in dispute.*

SEC. 4. *Duties of Committees.*

(a) *Duties of the National Administrative Committee.*— This committee shall be the general planning, coördinating and administering agency for the *industries operating under this code.* This committee is especially charged with the duty of formulating rules and regulations necessary for the

administration and enforcement of this code; *and shall take such steps as in its judgment are necessary to the full and proper* administration and enforcement of this code; and, upon the complaint of interested parties or upon its own initiative, of making such inquiry and investigation as to the operation of this code as may be necessary. The committee may delegate any of its authority to the National Control Committee and may designate such other agents as it may determine.

[Succeeding old paragraph omitted.]

This section shall not be construed as denying the right of any producer or group of producers to appeal to the National Industrial Recovery Board.

(b) *Duties of National Control Committee.*—This committee shall perform such functions as may be delegated to it by the National Administrative Committee. [Remainder of the old paragraph omitted.]

(c) [Unchanged.]

(d) *Duties of District Committees.—The duties of District Committees shall be as hereinbefore defined in Sec. 3(d).*

SEC. 5. [Old words "for the three industries governed by the code" omitted.]

SEC. 6. *Voting.*

(a), (b) and (c). [Unchanged.]

(d) *Voting by Producers within Administrative Region.* [Title of this paragraph referred back to convention's general committee for final action.] A meeting of the producers within an administrative region may be called at the instance of producers representing 25 per cent. of the number of companies within the administrative region, or producers representing 25 per cent. of the production within the administrative region, *or at the call of either the Regional or National Administrative Committees. The Regional Administrative Committee shall be elected* [proposed insertion here referred to general committee for final action] *as follows: A majority of the Regional Committee shall be elected by the producers who shall vote in accordance with their average annual production for five preceding years, each producer to have one vote for each 25,000 tons of production or major fraction thereof, or its equivalent in other units,* and the minority members shall be *elected by the producers, each of whom shall have one vote irrespective of production.* [Old words "Each producer within an administrative region shall have one vote, and" omitted.] A sanctioning vote shall be considered *a majority of the votes cast,* except that any action taken on which there is a disagreement by producers (whether or not they have participated in the voting) representing either 25 per cent. of the number of producers within the administrative region, or 25 per cent. of the production within the administrative region (based on the average production for the preceding five years) shall be reviewed by the National Administrative Committee, or its accredited representatives, and the decision of the National Administrative Committee shall be final, except for appeal to the National Industrial Recovery Board. [Remainder of old paragraph omitted.]

(e) [Old paragraph omitted.]

SEC. 7. [Unchanged.]

SEC. 8. *Statistics.*—All producers of crushed stone, sand and gravel, or slag shall file with the national association of the industry in which they are engaged such records as may be required by the National Administrative Committee with respect to *hours of labor, rates of wages,* production, stocks on hand, sales and such other information as may be necessary in the accomplishment of the objectives of this code, *and such records shall be accompanied by affidavits of the producer certifying as to the accuracy thereof when required by the National Administrative Committee. All records so filed with the National Association of the Industry and with the National Administrative Committee shall be held as confidential documents except that they be available to the federal administrator.*

[Subject matter of old Sec. 9 incorporated in new Sec. 8.]

SEC. 9. *Administration Expense.*—All producers engaged in the *industries under this code should* bear their proportionate share of the expense incident to initiating and securing the approval of, and administering this code. [Old words "of fair competition" omitted.] These funds shall be *collected through the agency of the respective National Associations. Reports of receipts and expenses shall be made to the producers semi-annually.*

[Old Sec. 10 changed and made Article VIII, which see.]

[Old Sec. 11 changed and made Sec. 9. See above.]

ARTICLE IV

Hours and Rates of Pay

SEC. 1. [Unchanged.]

SEC. 2. *Hours of Labor.*—With exceptions hereinafter set forth, no employee shall work more than [old words "1,000 hr. per 6-month period, 175 hr. per month, or" omitted] *40* hr. per week. The exceptions to the maximum number of working hours outlined herein shall be subject to approval by the National Administrative Committee, and shall include emergency employment occasioned by breakdowns and other factors beyond control, managerial *and clerical* employees and employees engaged in work where such maximum hours of employment create an impracticable condition, as in the case of *crews on floating equipment used in navigable water,* watchmen and other classes of employment designated by the *said National Administrative Committee.*

SEC. 3. *Rates of Pay.*—The minimum rates of pay per hour for common labor in the various *states, or portions of states, excepting boat crews engaged solely in transportation of materials* shall not be less than listed in *the attached schedule* which is made a part of this code.

(a) Rates of Pay:

State	Minimum Rate *(cents per hr.)*
Alabama	30
Arizona	30
Arkansas	30
California:	
South of Tehachapi Mountains	40
North of Tehachapi Mountains	50
Colorado	40
Connecticut	40
District of Columbia	40
Delaware	40
Florida	30
Georgia	30
Idaho	40
Illinois	40
Indiana	40
Iowa	40
Kansas	40
Kentucky	30
Louisiana	30
Maine	40
Maryland	40
Massachusetts	40
Michigan	40
Minnesota	40
Mississippi	30
Missouri	40
Montana	40
Nebraska	40
Nevada	40
New Hampshire	40
New Jersey	40
New Mexico	30
New York	40
North Carolina	30
North Dakota	40
Ohio (including all operations on Ohio River)	40
Oklahoma	30
Oregon	40
Pennsylvania	40
Rhode Island	40
South Carolina	30
South Dakota	40
Tennessee	30
Texas	30
Utah	40
Vermont	40
Virginia	30
Washington	40
West Virginia (east) [1]	30
West Virginia (west) [1]	40
Wisconsin	40
Wyoming	40

(b) *Piece Work.—No piece work shall be permitted which will decrease the minimum hourly wage or increase the number of hours worked per week provided for in this code.*

[1] [West Virginia is divided by drawing a line from the southwest corner of Pennsylvania to the point of intersection of the borders of Kentucky, West Virginia and Virginia.—ED.]

[Old Schedule I is supplanted by the schedule given in paragraph (a).]

ARTICLE V

Basis for Fair Selling Price

SEC. 1. *Selling Below Cost.*—No producer of crushed stone, sand, gravel or slag shall sell his product below *an annual average cost based on normal market operations for his market area.*

SEC. 2. [Unchanged.]

SEC. 3. *Uniform Terms of Sale.*—All quotations and contracts, *except petty sales to individuals or small tonnage for local consumption not exceeding 100 tons,* for the sale of crushed stone, sand, gravel, or slag shall be in writing and shall contain a definite statement of price, quantity, terms of payment, time and place of delivery, and all other items necessary to form a complete understanding. [Remainder of old paragraph omitted.]

SEC. 4. *Uniform Credit Practices.*—In each administrative region *or sub-region* the Regional Administrative Committee *or Sub-Regional Administrative Committee* may establish credit practices, uniform within any subdivision of a region, which shall be binding upon all producers selling in that region *or sub-region.*

[Old Sec. 5 omitted.]

SEC. 5. *Price Stabilization.*—In each administrative region *or sub-region* the Regional Administrative Committee *or sub-regional committee may* formulate plans for the determination of fair selling prices and practices and all producers selling their products in that region *or sub-region* shall adhere to such plans. Any such plans agreed upon within a region shall give due consideration to the average cost [old words "of production" omitted,] and shall be subject to the review and approval of the National Administrative Committee.

ARTICLE VI

Limitations on Plant Capacity and New Production

SEC. 1. No new plant may be established or the *producing capacity* of an existing plant increased or a plant moved from one *producing site* to another without notice of such intent being given to *and permission being granted by* the regional committee of the region in which the new production *capacities* are proposed to be located. Upon receipt of such notice the regional committee shall collect complete information concerning the existing producing capacity in that area. If these data discloses that such new production [old words "or additional facilities" omitted] will result in further increasing the problems of overproduction in such area, the regional committee shall *refuse to permit the increasing of capacity of any existing plant, or the construction of a new plant, or the movement of one plant to another producing site. In the event that it may become necessary to do so, the regional committee shall take such steps as may be necessary to enforce the decision.*

ARTICLE VII

Unfair Competitive Practices

SEC. 1-6. [Unchanged.]

SEC. 7. *Commercial Bribery.*—No producer of crushed stone, sand, gravel, or slag shall offer or give commissions, prizes, premiums, gifts, excessive entertainment *or other benefits* as an act of commercial bribery to anyone in connection with the sale, purchase or use of his products, or as an inducement thereto.

SEC. 8. [Unchanged.]

SEC. 9. *Anti-Dumping.*—Any producer of crushed stone, sand, gravel, or slag shipping his product into regions, or subdivisions thereof, outside *his natural market area or that* in which his plant is located shall not sell such material below the general market price prevailing in the region, or subdivision thereof, into which shipments are made.

SEC. 10, 11. [Unchanged.]

SEC. 12. *Employment of Penal Labor.—No penal labor shall be used in the production of crushed stone, sand, gravel, or slag.*

SEC. 13. [Unchanged.]

SEC. 14. [Old words, "Wherever commercial production of crushed stone, sand, gravel or slag is economically available" omitted.] No state, county, municipality or other divisions of government shall produce *stone, sand, gravel, or slag,* either for their own use or otherwise.

SEC. 15. *Child Labor.*—The minimum age for labor employed in the crushed-stone, sand, gravel, and slag industries shall be *the legal limit as provided by the laws of the state in which the operation is located, but in no instance less than sixteen years.*

ARTICLE VIII

Changes in the Code

SEC. 1. *This code and all provisions thereof are expressly made subject to the right of the President in accordance with the provision of Clause 10 (b) of the National Industrial Recovery Act, from time to time to cancel or modify any order, approval, license, rule, or regulation issued under Title I of said Act, and specifically to the right of the President to cancel or modify his approval of this code or any conditions imposed by him upon his approval thereof.*

SEC. 2. *The National Administrative Committee shall, from time to time, make such recommendations to the President for changes in this code as it shall be authorized to do by a majority of the votes cast by the producers engaged in the industries governed by this code, after each producer shall have been given a fair opportunity to vote upon such change. Such vote may be by letter ballot.*

[This article takes the place of Sec. 10 of old Article III.]

APPENDIX I

Administrative Region Number	States Included in Region
1	Maine, New Hampshire, Vermont, Massachusetts, Connecticut and Rhode Island.
2	New York (including Long Island).
3	Pennsylvania, New Jersey, and Delaware.
4	*West Virginia,* Virginia, Maryland, and the District of Columbia.
5	South Carolina, Georgia, Alabama, Florida, and Mississippi.
6	*North Carolina,* Kentucky, and Tennessee.
7	Ohio (including that portion of Ohio River south of the State of Ohio).
8	Illinois and Indiana.
9	*Michigan* and Wisconsin.
10	*Montana,* North Dakota, South Dakota, and *Minnesota.*
11	Nebraska and Iowa.
12	Kansas, Missouri, and Oklahoma.
13	*Arkansas,* Louisiana, and Texas.
14	*Wyoming,* Colorado, New Mexico, Utah, and Arizona.
15	*California and Nevada.*
16	*Washington, Oregon and Idaho.*

PRODUCERS REGISTERED AT CHICAGO CODE MEETING

(CrSt indicates crushed stone and SG sand and gravel. Membership in national trade associations is shown by an * for National Crushed Stone Assn., a † for National Sand & Gravel Assn., and a ‡ for National Slag Assn. Annual production capacity is shown in tons.)

Acme Gravel & Construction Co., Indianapolis, Ind. (J. L. Alley, pres.) SG
Ind.: 2 sg plants

*Acme Limestone Co., Alderson, W. Va. (J. A. Rigg, sec.-treas., gen. mgr.) CrSt
West Virginia: 1 crst plant, 250,000

Edwin Ahlskog, Kansas City, Mo. (Edwin Ahlskog) SG
Kansas: 1 sg plant, 410,000 tons

Alpha Sand Co., St. Louis, Mo. (E. J. Moore) SG
No plant data available
1 slag plant, 90,000 tons

†American Aggregates Corp., Greenville, Ohio (F. D. Coppock, pres.; M. G. Kerr, dist. mgr., Detroit) SG-Slag
Ind.: 4 sg plants, 2,350,000 tons
Mich.: 5 sg plants, 5,400,000 tons
Ohio: 6 sg plants, 5,590,000 tons

*American Limestone Co., St. Louis, Mo. (Thos. McCrosky, sales mgr., Knoxville) CrSt
Tenn.: 3 crst plants, 900,000 tons
American Lime & Stone Co., Bellefonte, Pa. (Charles Warner, pres., Philadelphia) CrSt
Pa.: 2 crst plants, 910,000 tons
†Amory Sand & Gravel Co., Amory, Miss. (E. L. Puckett, vice-pres., Amory) SG
Miss.: 1 sg plant, 250,000 tons
Anderson Sand & Gravel Co., Rockford, Ill. (C. H. Anderson, vice-pres., supt.) SG
Ill.: 1 sg plant, 90,000 tons
*Anna Stone Co., Anna, Ill. (O. O. Karraker) CrSt
Ill.: 1 crst plant, 250,000 tons
Arkansas City Sand & Gravel Co., Arkansas City, Kan. (N. C. Dunn, pres.) SG
Kan.: 2 sg plants, 175,000 tons
*Arnold Stone Co., Cape Girardeau, Mo. (L. Deimund, sec.-treas., pur. agt.) CrSt
Mo.: 4 crst plants
†Arrow Sand & Gravel Co., Columbus, O. (Stephen Stepanian, vice-pres., gen. mgr.) SG
Ohio: 2 sg plants, 800,000 tons
Atwood-Davis Sand Co., Chicago, Ill. (A. S. Sorenson, sec.) SG
Ill.: 1 sg plant
Ayers Mineral Co., Zanesville, O. (R. G. Hay) SG
No plant data available

J. E. Baker Co., York, Pa. (G. R. Shenberger, sec., pur. agt.) CrSt
Md.: 1 crst plant
Pa.: 5 crst plants
*C. C. Beam, Inc., Melvin, O. (C. C. Beam, pres., gen. mgr.; Harry Brandon) CrSt
Ohio: 1 crst plant, 200,000 tons
1 sg plant
Bedford-Nugent Co., Evansville, Ind. (J. W. Bedford, pres.; James L. Nugent vice-pres., treas.) SG
Ind.: 2 sg plants
Ill.: 1 sg plant
Ky.: 1 sg plant
Bedford Stone Products Co., Bedford, Ind. (Marshall Miller) CrSt
Ind.: 3 crst plants, 120,000 tons
Bethany Falls Lime Stone Co., Kansas City, Mo. (M. M. Alexander) CrSt
No plant data available
Big Bend Gravel Co., Milwaukee, Wis. (I. M. Clicquenoi) SG
No plant data available
*Big Bend Quarry Co., St. Louis, Mo. (Louis Skrainka, vice-pres.) CrSt
Mo.: 1 crst plant, 350,000 tons
*Big Rock Stone & Material Co., Little Rock, Ark. (R. S. Wilson, pres.; Ben F. Dickinson, vice-pres., gen. mgr.) CrSt-SG
Ark.: 3 crst and sg plants, 300,000 tons crst, 150,000 tons sg
‡Birmingham Slag Co., Birmingham, Ala. (C. E. Ireland, pres.) SG-Slag
Ala.: 3 slag plants, 750,000 tons (2 plants only); 1 sg plant, 1,000,000 tons
Blackwater Stone Co., Kansas City, Mo. (L. R. Peairs, pur. agt.) CrSt
Mo.: 1 crst plant, 250,000 tons
Black White Lime Co., Quincy, Ill. (T. P. Black, owner) CrSt
Ill.: 1 crst plant. 37,000 tons
*Blue Ridge Stone Corp., Roanoke, Va. (L. J. Boxley, pres.) CrSt
Va.: 1 crst plant, 300,000 tons
W. R. Bonsal Co., Hamlet, N. C. (F. J. Cloud, supt., eng., Lilesville, N. C.) SG
N. Car.: 1 sg plant, 500,000 tons
†Boston Sand & Gravel Co., Boston, Mass. (Paul P. Bird, pres.) SG
Mass.: 2 sg plants, 1,340,000 tons
J. W. Brannan Sand & Gravel Co., Denver, Colo. (F. P. Spratlen, Jr., pres.) SG
Colo.: 6 sg plants, 750,000 tons
Brown-Rosenbarger Gravel Co., Indianapolis, Ind. (Herbert E. Brown) SG
Ind.: 6 portable sg plants
Mich.: 2 portable sg plants
*Buffalo Crushed Stone Co., Buffalo, N. Y. (James Savage, sec.-treas., gen. mgr.) CrSt
N. Y.: 2 crst plants
†Buffalo Gravel Corp., Buffalo, N. Y. (R. W. Eberly, pres., F. H. Ernst, sec.) SG
N. Y.: 6 sg plants, 1,168,750 tons
‡Buffalo Slag Co., Buffalo, N. Y. (H. N. Snyder, sec.-treas., gen. mgr.) SG-Slag
N. Y.: 2 sg plants, 650,000 tons
3 slag plants, 925,000 tons
Pa.: 2 slag plants, 165,000 tons
*Builders' Material Co., Cedar Rapids, Ia. (S. P. Moore, pres.) CrSt
Ia.: 2 crst plants, 180,000 tons

*Callanan Road Improvement Co., South Bethlehem, N. Y. (Roland Kinnear, sec., Albany, N. Y.) CrSt
N. Y.: 1 crst plant, 500,000 tons
*Harry T. Campbell Sons Co., Towson, Md. (Bruce S. Campbell, pres.; Harry G. Campbell, treas.) CrSt
Md.: 5 crst plants, 150,000 tons (2 plants only)
†Cape Girardeau Sand Co., Capt Girardeau, Mo. (L. Deimund, vice-pres., treas.) SG
Mo.: 1 sg plant
*Carbon Limestone Co., Youngstown, O. (F. O. Earnshaw, pres.) CrSt
Pa.: 1 crst plant, 1,210,000 tons
Carnegie Steel Co., Pittsburgh, Pa. (E. L. Flad, Pittsburgh) Slag
No plant data available
*Carthage Crushed Limestone Co., Carthage, Mo. (L. E. Koken, pres.) CrSt
Mo.: 2 crst plants
Cashion Slag Co., Butler, Pa. (J. E. Cashion, pres.) Slag
Pa.: 2 slag plants, 200,000 tons
*Cedar Bluff Quarry Co., Princeton, Ky. (W. C. Sparks) CrSt
Ky.: 1 crst plant, 166,000 tons
Central Iowa Sand & Gravel Co., Des Moines, Ia.) (Gaylord E. Gray, gen. mgr.) SG
Ia.: 6 sg plants
*Central Rock Co., Lexington, Ky. (W. Bruce Isaacs, sec.-treas.) CrSt
Ky.: 1 crst plant, 120,000 tons
†Central Sand & Gravel Co., Memphis, Tenn. (W. W. Fischer, pres.; L. T. McCourt, vice-pres.) SG
Tenn.: 1 sg plant, 750,000 tons
*Centropolis Crusher Co., Kansas City, Mo. (E. L. Schnieder, sec.-treas.) CrSt
Mo.: 1 crst plant, 150,000 tons
Cerulean Stone Co., Cerulean, Ky. (J. L. Nicholson, Jr., gen. mgr.) CrSt
Ky.: 1 crst plant, 111,000 tons
†Chicago Gravel Co., Chicago, Ill. (F. W. Renwick, pres.; G. W. Renwick, vice-pres.; L. A. Behrle; John Sankey) SG
Ill.: 4 sg plants, 2,750,000 tons
*Columbia Quarry Co., St. Louis, Mo. (E. J. Krause, pres.) CrSt
Ill.: 2 crst plants, 1,150,000 tons
†Concrete Gravel Co., Hattiesburg, Miss. (G. B. Denham, sec.-treas., pur. agt.) SG
Miss.: 1 sg plant, 300,000 tons
†Concrete Materials Corp., Waterloo, Ia. (H. D. Bellamy, pres.) SG
Ia.: 5 sg plants, 1,583,000 tons
†H. D. Conkey & Co., Mendota, Ill. (O. J. Ellingen, vice-pres.) SG
Ill.: 3 sg plants, 925,000 tons
*Connecticut Quarries Co., New Haven, Conn. (A. L. Worthen, vice-pres., gen. mgr.) CrSt
Conn.: 8 crst plants, 965,000 tons
*†Consolidated Rock Products Co., Los Angeles, Cal. (F. J. Twaits, pres., Los Angeles; G. G. Robinson, Toronto, Ont.) SG
Cal.: 17 sg plants
*Consolidated Stone & Sand Co., Montclair Heights, N. J. (Geo. J. Fredericks, treas., pur. agt.) CrSt-SG
N. J.: 1 crst plant; 1 sg plant
†Construction Materials Co., Chicago, Ill. (J. R. Sensibar, pres., John M. Balk; Smith B. Taylor) SG
Ill.: 5 sg plants
Ind.: 3 sg plants } 10,000,000 tons
Mich.: 4 sg plants
Consumers' Sand Co., Topeka, Kan. (F. A. Laughhead, pres.) SG
Kan.: 12 sg plants
†Cooley Gravel Co., Indianapolis, Ind. (C. G. Cooley, pres., R. E. Long, Chillicothe, Mo.) SG
Ind.: 1 sg plant, 85,000 tons
Mo.: 1 sg plant, 200,000 tons
Coon River Coöperative Sand Assn., Des Moines, Ia. (C. V. Ray, pres.) SG
Ia.: 2 sg plants, 200,000 tons
†Cumberland River Sand Co., Nashville, Tenn. (R. N. Coolidge, gen. mgr.) SG
Tenn.: 2 sg plants, 400,000 tons (1 plant only)
†Curtis & Hill Gravel & Sand Co., Philadelphia, Pa. (H. J. Curtis, pres.) SG
Pa.: 1 sg plant, 900,000 tons
*Cushing Stone Co., Schenectady, N. J. (J. E. Cushing, pres.) CrSt-SG
N. Y.: 3 crst plants, 800,000 tons
2 sg plants, 1,200,000 tons

†J. K. Davison & Bros., Pittsburgh, Pa. (H. S. Davison, sec.-treas.) SG
Pa.: 2 sg dredges
Des Moines Sand & Fuel Coöperative Assn., Des Moines, Ia. (E. M. Gray, pres.) SG
Ia.: 1 sg plant, 175,000 tons
De Soto Kaw River Sand Co., De Soto, Kan. (L. M. Chambers, sec.-treas., gen. mgr.) SG
Kan.: 1 sg plant, 180,000 tons
*Dewey Portland Cement Co., Kansas City, Mo. (L. J. Capen, K. P. Ferrell, Davenport) CrSt
Ia.: 1 crst plant, 170,000 tons
Okla.: 1 crst plant
Dolcito Quarry Co., Birmingham, Ala. (R. D. Beatty) CrSt
Ala.: 1 crst plant, 225,000 tons
*Dolese Bros. Co., Chicago, Ill. (Henry Dolese) CrSt
No plant data available
*Dolese & Shepard Co., Chicago, Ill. (J. J. Cronin, gen. mgr.; A. J. Sullivan) CrSt
Ill.: 1 crst plant, 1,100,000 tons
*Dubuque Stone Products Co., Dubuque, Ia. (Paul M. Nauman, sec.-treas., gen. mgr.) CrSt
Ia.: 1 crst plant, 425,000 tons
‡Duquesne Slag Products Co., Pittsburgh, Pa. (C. L. McKenzie, pres.) Slag
Pa.: 9 slag plants, 1,975,000 tons (8 plants only)
*John T. Dyer Quarry Co., Norristown, Pa. (F. T. Gucker, pres.) CrSt
Pa.: 3 crst plants, 800,000 tons

†Eastern Rock Products, Inc., Utica, N. Y. (H. V. Owens, pres.) CrSt-SG
N. Y.: 6 sg plants, 895,000 tons
2 crst plants, 340,000 tons
†Eastern Sand & Gravel Corp., Philadelphia, Pa. (Julius Adler) SG
No plant data available
†East Tennessee Sand & Gravel Co., Elizabethton, Tenn. (A. B. Rodes, vice-pres.) SG
Tenn.: 1 sg plant, 150,000 tons
Eau Claire Sand & Gravel Co., Eau Claire, Wis. (A. O. Ayres, pres., gen. mgr.) SG
Wis.: 2 sg plants, 580,000 tons
Electric Limestone Co., St. Louis, Mo. (F. C. Murphy, St. Louis) CrSt
Ill.: 1 crst plant, 600,000 tons
Elkhart-Moraine Sand & Gravel Co., Elkhart Lake, Wis. (A. A. Laun, pres., Milwaukee; L. L. Laun, sec.-treas.) SG
Wis.: 3 sg plants, 420,000 tons
Erie Stone Co., Indianapolis, Ind. (N. E. Kelb., sec., gen. mgr.) CrSt
Ind.: 4 crst plants, 1,190,000 tons
Ohio: 2 crst plants, 300,000 tons
*Eyermann Contracting Co., St. Louis, Mo. (W. J. Eyermann, pres.) CrSt
Mo.: 2 crst plants, 170,000 tons

*Federal Crushed Stone Corp., Buffalo, N. Y. (H. N. Snyder, pres.) CrSt
N. Y.: 1 crst plant, 400,000 tons
*Federal Materials Co., Cape Girardeau, Mo. (Norman L. Hely, pres.) CrSt-SG
Ky.: 1 sg plant, 225,000 tons
Mo.: 1 crst plant, 500,000 tons
†Flint Crushed Gravel Co., Des Moines, Ia. (R. C. Fletcher, vice-pres., gen. mgr.) SG
Ia.: 1 sg plant, 50,000 tons
†Flint Sand & Gravel Co., Inc., New Orleans, La. (C. O. Harris) SG
La.: 5 sg plants, 19,750 tons
*Florida Crushed Stone Co., Jacksonville, Fla. (E. F. Fitch, Jacksonville) CrSt
No plant data available

†Florida Gravel Co., Chattahoochee, Fla. (C. F. Mullen, pres., Cleveland, O.) SG
Fla.: 1 sg plant, 110,000 tons

†Foley Bros., Inc., St. Paul, Minn. (F. J. Anderson, J. P. Haley, St. Paul) SG
No plant data available

†Fort Worth Sand & Gravel Co., Fort Worth, Tex. (R. M. Quigley, ch. eng.) SG
Tex.: 2 sg plants, 1,250,000 tons

*Franklin Limestone Co., Nashville, Tenn. (H. E. Rodes, pres.; A. B. Rodes, gen. mgr., pur. agt.) SG-CrSt
Tenn.: 1 sg plant, 150,000 tons
3 crst plants, 400,000 tons

Gallo Sand & Gravel, Inc., Netcong, N. J. (J. W. Hummer) SG
N. J.: 1 sg plant, 200,000 tons

*General Crushed Stone Co., Easton, Pa. (John Rice, ch. bd.; O. M. Graves, pres.; W. L. Sporborg, Syracuse) CrSt-SG
Mass.: 1 crst plant, 300,000 tons
N. Y.: 7 crst plants, 2,000,000 tons
2 sg plants, 100,000 tons (1 plant only)
Pa.: 4 crst plants, 775,000 tons

*Genesee Stone Products Co., Batavia, N. Y. (A. B. Caldwell, pres.) Crst
N. Y.: 1 crst plant, 250,000 tons

A. H. George Stone Co., New Salem, Ind. (A. H. George, owner) CrSt-SG
Ind.: 2 crst plants, 50,000 tons
1 sg plant

†Georgia Gravel Co., Columbus, Ga. (C. F. Mullen, pres., Cleveland, O.) SG
Ga.: 1 sg plant, 153,000 tons

Georgia Mineral Products Co., Tate, Ga. (H. L. Litchfield, treas., pur. agt.) CrSt
Ga.: 1 crst plant, 41,600 tons

†Gifford-Hill & Co., Inc., Dallas, Tex. (J. Rutledge Hill, vice-pres.) CrSt-SG
La.: 3 sg plants, 800,000 tons
Tex.: 1 crst plant
7 sg plants, 600,000 tons (2 plants only)

†Glacier Sand & Gravel Co., Minneapolis, Minn. (Edward O'Toole, Islington, Mass.) SG
Minn.: 7 sg plant, 90,000 tons

†Goodwin-Gallagher Sand & Gravel Corp. New York, N. Y. (J. I. Goodstein, Harold T. Smith) SG
N. Y.: 1 sg plant, 4,000,000 tons

*Graham Bros., Inc., Long Beach, Cal. (H. F. C. Pelsue, Los Angeles) CrSt-SG
Cal.: 2 crst plants, 100,000 tons, crst, 60,000 tons sg
4 sg plants, 120,000 (1 plant only)

†Grand Rapids Gravel Co., Grand Rapids, Mich. (Henry N. Battjes, pres.) SG
Mich.: 5 sg plants, 787,500 tons (4 plants only)

Grangers Manufacturing Co., Boston, Mass. (C. P. Tomlinson, vice-pres., gen. mgr.) CrSt
Mass.: 1 crst plant, 40,000 tons

†Gravel Products Corp., Buffalo, N. Y. (Ernest M. Hammond, vice-pres., gen. mgr.) SG
N. Y.: 2 sg plants

‡Great Lakes Steel Corp., Detroit, Mich. (K. A. Dietrick, Detroit) Slag
No plant data available

Green Bros. Gravel Co., Puayune, Miss. (Heyward Green) SG
No plant data available

†Greenville Sand & Gravel Co., Memphis, Tenn. (L. T. McCourt, vice-pres.) SG
Miss.: 1 sg plant, 500,000 tons

†Hahn Bros. Sand & Gravel Co., Muscatine, Ia. (Walter R. Hahn, vice-pres., pur. agt.) CrSt
Ia.: 1 crst plant, 100,000 tons

†Hamilton Gravel Co., Hamilton, O. (W. P. Watson, sec.-treas., gen. mgr.) SG
Ohio: 1 sg plant, 72,000 tons

†Hawkeye Material Co., Iowa City, Ia. (George P. Thomas, pres.) SG
Ia.: 1 sg plant, 75,000 tons

Hiddenite Granite Co., Raleigh, N. C. (B. W. Parkham, sec., Oxford) CrSt
N. Caro.: 2 crst plants, 165,000 tons

Higgins Stone Co., Bellevue, O. (R. M. Moore) CrSt
Ohio: 1 crst plant, 100,000 tons

Holloway Gravel Co., Inc., Amite, La. (H. H. Holloway, pres.) SG
La.: 3 sg plants, 1,385,000 tons

*Hopkinsville Stone Co., Hopkinsville, Ky. (A. M. Andrew, sec.-treas.) CrSt
Ky.: 1 crst plant, 140,000 tons

Hudson River Stone Corp., Cold Spring, N. Y. (J. V. O'Brien, asst. treas.) CrSt
N. Y.: 1 crst plant, 2,200,000 tons

Hughes Stone Co., Tulsa, Okla. (J. M. Chandler, pres.) CrSt
Okla.: 1 crst plant, 200,000 tons

†Ideal Sand & Gravel Co., Mason City, Ia. (Grant McGowan, pres.; C. E. Thomas, supt.) SG
Ia.: 1 sg plant, 355,000 tons

‡Illinois Slag & Ballast Co., Chicago, Ill. (L. E. McDermut, pres.; Wm. H. Reid, vice-pres.) Slag
Ill.: 2 slag plants

Independent Gravel Co., Joplin, Mo. (Ben D. Reynolds, gen. mgr., Webb City; Scott A. Fones, Joplin) CrSt
Kan.: 1 chats plant
Mo.: 13 crst plants

Indiana Gravel Co., Inc., Indianapolis, Ind. (Jesse A. Shearer, pres.) SG
Ind.: 2 sg plants, 225,000 tons

Indiana Limestone Co., Bedford, Ind. (John G. Drummond) CrSt
Ind.: 1 crst plant, 225,000 tons

*Inland Lime & Stone Co., Manistique, Mich. (A. J. Cayia, gen. supt.; Gordon W. Hughes, sales mgr.) CrSt
Mich.: 1 crst plant, 2,000,000 tons

†Interstate Sand & Gravel Co., Terre Haute, Ind. (H. L. McGurk, sec.-treas.) SG
Ind.: 1 sg plant, 300,000 tons

Iron City Sand & Gravel Co., Pittsburgh, Pa. (Wm. S. Giles) SG
Pa.: 6 sg plants, 1,600,000 tons

Jahncke Service, Inc., New Orleans, La. (Walter F. Jahncke, vice-pres., treas.) SG
La.: 1 sand plant
Miss.: 1 sg plant

Janesville Sand & Gravel Co., Janesville, Wis. (Frank E. Lane) SG
Wis.: 2 sg plants

Kaiser Paving Co., Oakland, Cal. (Henry J. Kaiser, pres.) SG
Cal.: 4 sg plants, 1,400,000 tons (2 plants only)

Kansas Sand Co., Topeka, Kan. (Otto Kuehne, Jr., pres., gen. mgr.) SG
Kan.: 1 sg plant, 200,000 tons

*Kelley Island Lime & Transport Co., Cleveland, O. (F. W. Ohlemacher, vice-pres., Sandusky) CrSt-SG
Mich.: 1 crst plant
N. Y.: 1 crst plant
Ohio: 5 crst plants, 1 sg plant
W. Va.: 1 crst plant

*Kentucky Consolidated Stone Co., Louisville, Ky. (Sam. P. Burnam, V. C. Morgan) CrSt
No plant data available

*Kentucky-Virginia Stone Co., Inc., Gibson Station, Va. (W. B. Paynter, pres., Middlesboro) CrSt
Va.: 1 crst plant, 235,000 tons

†Keystone Sand & Supply Co., Pittsburgh, Pa. (Alex W. Dann, pres.) SG
Ohio: 2 sg plants
Pa.: 9 sg plants

Kingston Lake Gravel Co., Mapleton, Ill. (George N. Childs, pres., Bloomington) SG
Ill.: 1 sg plant, 250,000 tons

Koch Sand & Gravel Co., Evansville, Ind. (Bert Koenig, treas.) SG
Ind.: 2 sg plants, 275,000 tons
Ky.: 1 sg plant, 25,000 tons

Koenig Coal & Supply Co., Detroit, Mich. (A. J. O'Connor) SG
Mich.: 2 sg plants, 1,500,000 tons

*Lake Shore Sand & Stone Co., Milwaukee, Wis. (Ezra Sensibar, A. J. Blair) SG
Pa.: 1 sg plant

*John S. Lane & Son, Meriden, Conn. (A. S. Lane, Springfield) CrSt
Mass.: 6 crst plants, 1,700,000 tons

†Lawrence Stone & Gravel Co., Raleigh, N. C. (W. R. Bonsal, Jr., vice-pres.) SG
N. Car.: 1 sg plant, 550,000 tons
S. Car.: 2 sg plants, 1,200,000 tons

Le Grand Limestone Co., Chicago, Ill. (E. A. Howard, pres.) CrSt-SG
Ia.: 1 crst plant, 225,000 tons
1 sg plant } 700,000 tons
Minn.: 1 sg plant }

*Lehigh Stone Co., Kankakee, Ill. (W. R. Sanborn, vice-pres., gen. mgr.) CrSt-SG
Ill.: 1 sg plant, 200,000 tons
1 crst plant, 1,200,000 tons

*Le Roy Lime & Crushed Stone Corp., Le Roy, N. Y. (J. L. Heimlich, pres.) CrSt
N. Y.: 1 crst plant

*Liberty Limestone Corp., Rocky Point, Va. (John W. Stull, pres., Buchanan) CrSt
Va.: 1 crst plant, 200,000 tons

Lima Stone Co., Lima, O. (Chas. Killen, sec.-treas., gen. mgr.) CrSt
Ohio: 1 crst plant, 500,000 tons

Lincoln Crushed Stone Co., Joliet, Ill. (J. P. Enright, B. C. Nicholson) CrSt
Ill.: 1 crst plant, 450,000 tons

†Lincoln Sand & Gravel Co., Lincoln, Ill. (V. O. Johnston, pres.; F. W. Longan, treas.; R. E. Weaver, gen. mgr.) SG
Ill.: 1 sg plant, 350,000 tons

Lingo Co., Inc., Seymour, Ind. (N. J. Lingo, gen. mgr.) SG
Ind.: 1 sg plant, 60,000 tons

*Linwood Cement Co., Davenport, Ia. (R. S. Quelle) CrSt
Ia.: 1 crst plant, 200,000 tons

*L. & M. Stone Co., Utica, N. Y. (Wm. McGrew, Prospect) CrSt
N. Y.: 1 crst plant, 95,000 tons

Louisville Cement Corp., Louisville, Ky. (Henry S. Gray, sec.-treas.) CrSt
Ind.: 1 crst plant, 373,000 tons

†Lyman-Richey Sand & Gravel Co., Omaha, Neb. (Fred P. Curtis, vice-pres., pur agt.) SG
Neb.: 21 sg plants

Malvern Gravel Co., Malvern, Ark. (H. F. Riley, pres., Chicago) SG
Ark.: 1 sg plant, 900,000 tons

*Manegold Stone Co., Milwaukee, Wis. (John R. Manegold) CrSt
No plant data available

*Marble Cliff Quarries Co., Columbus, O. (Russell Rarey, vice-pres., sales mgr.) CrSt
Ohio: 1 crst plant, 1,600,000 tons

*Marquette Cement Mfg. Co., Chicago, Ill. (D. S. Colburn) CrSt
Mo.: 1 crst plant, 450,000 tons

†McClain Sand Co., Point Marion, Pa. (F. L. Bowers, sec.-treas., gen. mgr.) SG
Pa.: 1 sg plant

†McGrath Sand & Gravel Co., Lincoln, Ill. (T. E. McGrath, vice-pres.) SG
Ill.: 4 sg plants, 2,100,000 tons

*McManus Quarries Co., Keokuk, Ia. (T. J. McManus, sec.-treas., gen. mgr.) CrSt
Ia.: 1 crst plant, 44,000 tons

Memphis Stone & Gravel Co., Memphis, Tenn. (J. S. Cooper) SG
Ky.: 1 sg plant }
Miss.: 2 sg plants } 600,000 tons
Tenn.: 1 sg plant }

†Meriwether Sand & Gravel Co., Shreveport, La. (J. S. Meriwether, pres.) SG
Ark.: 1 sg plant, 250,000 tons

Merom Gravel Co., Indianapolis, Ind. (John E. Hollett, sec.-treas.; Ben Stone, gen. mgr.) SG
Ind.: 1 sg plant, 300,000 tons

*Meshberger Bros. Stone Co., Linn Grove, Ind. (J. R. Hardenhoff) CrSt
Ind.: 2 crst plants

Michigan Gravel Co., Saginaw, Mich. (Ezra Sensibar) SG
Mich.: 4 sg plants

Michigan Limestone & Chemical Co., Rogers City, Mich. (R. B. Henley, John G. Munson) CrSt
Mich.: 1 crst plant, 12,500,000 tons
N. Y.: 1 crst plant, 107,300 tons

Midwest Rock Products Co., Indianapolis, Ind. (E. B. Taylor) CrSt
Ind.: 3 crst plants

Missouri Portland Cement Co., St. Louis, Mo. (M. Moss Alexander, gen. sales mgr.) CrSt
No plant data available

*Monon Crushed Stone Co., Monon, Ind. (Geo. H. Balfe, sec.-treas., gen. mgr.; Wm. B. Newman) CrSt
Ind.: 1 crst plant, 300,000 tons

Montgomery Gravel Co., Montgomery, Ala. (C. B. Ireland, pres.) SG
Ala.: 1 sg plant, 1,000,000 tons

†Morton Sand & Gravel Co., Chicago, Ill. (George H. Hartong, vice-pres., gen. mgr.) SG
Ill.: 1 sg plant, 300,000 tons

Moulding-Brownell Corp., Chicago, Ill. (A. H. Bannister) SG-CrSt
Ill.: 2 sg plants
3 crst plants
Wis.: 2 sg plants
Ind.: 1 sg plant

Mt. Carmel Sand & Gravel Co., Mt. Carmel, Ill. (V. N. Rehnquist, sec.-treas., sales mgr.) SG
Ill.: 1 sg plant

National Stone Co., Joliet, Ill. (W. N. Carter, pres.) CrSt
Ill.: 1 crst plant, 300,000 tons

†Neal Gravel Co., Mattoon, Ill. (B. E. Neal, pres.; E. Guy Sutton, vice-pres.) SG
Ind.: 7 sg plants, 1,265,000 tons

*New Haven Trap Rock Co., New Haven, Conn. (Wm. E. Hilliard, gen. mgr., pur. agt.) CrSt
Conn.: 1 crst plant, 250,000 tons

*Newton County Stone Co., Kentland, Ind. (Geo. H. Hart, treas., gen. mgr.) CrSt
Ind.: 1 crst plant

*New York Trap Rock Co., New York, N. Y. (Stirling Tomkins, vice-pres.; Wm. P. Foss, Jr., ch. bd.; Wm. A Barber) CrSt
N. Y.: 5 crst plants, 2,500,000 tons (2 plants only)

Nickel Plate Sand & Gravel Co., Erie, Pa. (J. G. Mayer, pres.) SG
Pa.: 1 sg plant, 240,000 tons

Northern Gravel Co., Muscatine, Ia. (E. W. Boynton, pres.; C. E. Graelner) SG
Ia.: 1 sg plant

†Northern Gravel Co., West Bend, Wis. (F. A. Bingham, gen. mgr., pur. agt.) SG
Wis.: 1 sg plant, 400,000 tons

*North Jersey Quarry Co., Morristown, N. J. (I. W. Wortman, pres.; F. W. Schmidt, Jr., vice-pres.) CrSt-SG
N. J.: 5 crst plants, 1,100,000 tons
2 sg plants, 450,000 tons

O'Brien Bros., Inc., New York, N. Y. (J. V. O'Brien, treas.; Thos. F. O'Brien, Jr.) SG
N. Y.: 2 sg plants, 2,750,000 tons

†Ohio Gravel Co., Cincinnati, O. (Earl Zimmerman, vice-pres.; F. E. Hall, vice-pres.) SG
Ohio: 9 sg plants, 2,000,000 tons

*†Ohio & Indiana Stone Co., Indianapolis, Ind. (C. D. Ward) CrSt
Ind.: 1 crst plant, 250,000 tons

*Ohio Marble Co., Piqua, O. (A. Acton Hall, vice-pres., gen. mgr.) CrSt
Ohio: 1 crst plant, 340,000 tons

†Ohio River Sand Co., Inc., Louisville, Ky. (J. M. Settle, pres.; H. P. Caldwell; Joseph W. Hazell) SG
Ky.: 1 sg plant, 1,500,000 tons

Ohio River Sand & Gravel Co., Parkersburg, W. Va. (L. D. Vincent, vice-pres., gen. mgr.) SG
Ohio: 1 sg plant, 35,000 tons
W. Va.: 3 sg plants

*Old Colony Crushed Stone Co., Quincy, Mass. (Eugene R. Atwood, treas., gen. mgr.) CrSt
Mass.: 1 crst plant, 300,000 tons

Olive Hill Limestone Co., Olive Hill, Ky. (J. H. Mobley, pres.) CrSt
Ky.: 3 crst plants, 320,000 tons

†Ontario Sand & Gravel Co., Inc., Geneva, N. Y. (H. B. Graves) SG
N. Y.: 1 sg plant, 600,000 tons

*Orange Quarry Co., West Orange, N. J. (Samuel F. Dixon) CrSt
No plant data available

Ottawa Silica Co., Ottawa, Ill. (P. S. McDougall, pres.) S
Ill.: 3 s plants, 1,400,000 tons

Pacific Coast Aggregates, Inc., San Francisco, Cal. (Chas. M. Cadman, pres.) SG
Cal.: 22 sg plants

Pearls Island Sand Co., Bluff City, Va. (M. T. Epling, lessor, Pearisburg, Va.) SG
Va.: 1 sg plant, 100,000 tons

†Peck-Thompson Sand & Material Co., Kansas City, Mo. (F. W. Peck, pres.) SG
Mo.: 1 sg plant, 500,000 tons

Peerless White Lime Co., St. Louis, Mo. (D. S. Hunkins, vice-pres.) CrSt
Mo.: 1 crst plant, 200,000 tons

Philadelphia Slag Co., Swedeland, Pa. (Wm. S. Buckland, pres.; W. E. Loomis) Slag
Pa.: 1 slag plant, 125,000 tons

Piedmont Quarries Co., Winston-Salem, N. C. (L. M. Seawell, treas.) CrSt
N. Caro.: 3 crst plants, 100,000 tons

Pittsburgh Limestone Co., Pittsburgh, Pa. (A. W. Worthington, vice-pres., gen. mgr.) CrSt
Pa.: 5 crst plants, 3,550,000 tons
2 crst plants, 1,200,000 tons

Portsmouth Sand & Gravel Co., Portsmouth, O. (F. C. Fuller, sec.-treas.) SG
Ohio: 1 sg plant, 200,000 tons

†Potts-Moore Gravel Co., Waco, Tex. (R. J. Potts, pres.) SG
Tex.: 1 sg plant, 200,000 tons

†Price Sand Co., Tulsa, Okla. (J. M. Chandler, pres.) SG
Okla.: 1 sg plant, 150,000 tons

Producers' Core Sand Corp., Michigan City, Ind. (John N. Bos, Chicago) S
Ind.: 1 s plant

†Putnam Sand & Building Co., Salina, Kan. (G. H. Putnam) SG
Kan.: 1 sg plant, 120,000 tons

*Radford Limestone Co., Inc., New York, N. Y. (H. S. Slocum, gen. mgr., East Radford, Va.) CrSt
Va.: 1 crst plant, 300,000 tons

*Raleigh Granite Co., Raleigh, N. C. (Wallace L. Caldwell, Birmingham, Ala.) CrSt
N. Caro.: 4 crst plants, 775,000 tons

Reader Gravel Co., Inc., Shreveport, La. (Brown McCullough, sec., gen. mgr., Reader, Ark.) SG
Ark.: 1 sg plant, 400,000 tons

*Reinhold Granite Co., Pittsburgh, Pa. (P. B. Reinhold) CrSt
No plant data available

†Reitz & Crites Sand Co., Chadron, Neb. (P. A. Reitz, pres.) SG
S. Dak.: 1 sg plant, 75,000 tons

Reliance Whiting Co., Alton, Ill. (C. E. Hermann, vice-pres.) CrSt
Ill.: 1 crst plant, 180,000 tons

Risley Sand & Gravel Co., Dixon, Ill. (E. C. Risley) SG
Ill.: 1 sg plant, 45,000 tons

River Products Co., Iowa City, Ia. (P. A. Dooley) CrSt
Ia.: 1 crst plant, 112,000 tons

†River Sand & Gravel Co., Inc., Owensboro, Ky. (P. A. Yager, pres.) SG
Ky.: 1 sg plant

Riverside Lime & Stone Co., Chicago, Ill. (Bert S. Keller) CrSt
Ill.: 1 crst plant, 250,500 tons

*Rock Hill Quarries Co., St. Louis, Mo. (H. E. Billman, pres.) CrSt
Mo.: 3 crst plants, 400,000 tons

Rock Island Sand & Gravel Co., Rock Island, Ill. (H. J. Larkin, sec., gen. mgr.) SG
Ill.: 1 sg plant, 200,000 tons

Romesburg Stone Co., Garrett, Pa. (O. C. Cluss) CrSt
No plant data available

Rosoff Sand & Gravel Corp., New York, N. Y. (S. R. Rosoff, pres.) SG
N. Y.: 1 sg plant

*Rowe Contracting Co., Malden, Mass. (Warren Rowe, pres.) CrSt
Mass.: 2 crst plants, 300,000 tons

†St. Louis Material & Supply Co., St. Louis, Mo. (Otto S. Conrades, pres.) SG
Mo.: 2 sg plants, 1,100,000 tons

Sand Products Corp., Detroit, Mich. (Mark T. McKee, vice-pres.; A. N. Farmer, treas., Cleveland) SG
Mich.: 4 sg plants
Wis.: 1 sg plant, 75,000 tons

Schellberg Sand & Gravel Co., Omaha, Neb. (Geo. D. Schellberg, pres.) SG
Neb.: 2 sg plants, 150,000 tons (1 plant only)

†Seaboard Sand & Gravel Corp., New York, N. Y. (Anderson Dana, sec., pur. agt.) SG
N. Y.: 1 sg plant, 2,450,000 tons

Service Supply Co., Rockford, Ill. (S. A. Gibson) SG
No plant data available

*Servtex Material Co., New Braunfels, Tex. (E. Eikel, sec.-treas., gen. mgr.) CrSt
Tex.: 2 crst plants, 1,000,000 tons

Sheridan Sand & Gravel Co., Ottawa, Ill. (J. L. MacArthur) SG
Ill.: 1 sg plant, 550,000 tons

†J. L. Shiely Co., St. Paul, Minn. (J. L. Shiely, pres.) CrSt-SG
Minn.: 3 sg plants, 450,000 tons (2 plants only)
1 crst plant, 145,000 tons
Mont.: 2 sg plants, 350,000 tons
N. Dak.: 1 sg plant, 200,000 tons
Wash.: 1 sg plant, 250,000 tons

W. K. Smiley & Son, Lynchburg, Va. (Henry M. Smiley) SG
Ky.: 1 sg plant, 5,000 tons
N. Dak.: 1 sg plant, 5,000 tons
S. Caro.: 1 sg plant, 5,000 tons
Tenn.: 1 sg plant, 5,000 tons

South Bend Sand & Gravel Corp., South Bend, Ind. (J. B. Christman, pres.) SG
Ind.: 5 sg plants

South Carolina Granite Corp., Columbia, S. C. (W. T. Ragland, vice-pres.) CrSt
S. Caro.: 1 crst plant, 650,000 tons

*Southwest Stone Co., Dallas, Tex. (W. F. Wise, pres.) CrSt
Okla.: 1 crst plant, 225,000 tons
Tex.: 3 crst plants, 495,000 tons

Springfield-Pekin Sand & Gravel Co., Springfield, Ill. (D. H. O'Keefe, sec.-treas.) SG
Ill.: 1 sg plant, 300,000 tons

Standard Gravel Co., Pontiac, Mich. (O. E. Gooding, sales mgr., New Hudson; Frank A. Slater, sec. treas.) SG
Mich.: 1 sg plant, 450,000 tons

Standard Gravel Co., Camden, Ark. (J. W. Sanders, pres.) SG
Ark.: 2 sg plants, 380,000 tons

*Standard Lime & Stone Co., Baltimore, Md. (Jos. D. Baker, Jr., sec.-treas.; Harry Byer; E. C. Mathias; W. J. Young, ch. engr.; C. H. Slater) CrSt
Md.: 1 crst plant
W. Va.: 2 crs plants

‡Standard Slag Co., Youngstown, O. (W. H. Kilcawley, sec.-treas.) Slag
Ky.: 1 slag plant, 200,000 tons
Md.: 1 slag plant, 500,000 tons
Ohio: 15 slag plants, 3,300,000 tons
Pa.: 3 slag plants, 800,000 tons
W. Va.: 1 slag plant, 300,000 tons

Star Sand & Gravel Corp., Rochester, N. Y. (John E. Redman, pres.) SG
N. Y.: 1 sg plant, 85,000 tons

*Stewart Sand & Material Co., Kansas City, Mo. (John Prince, pres.) CrSt-SG
Kan.: 2 sg plants, 500,000 tons
Mo.: 2 crst plants, 800,000 tons
1 sg plant, 250,000 tons

Stockbridge Stone Co., Stockbridge, Ga. (G. C. McCullough, vice-pres., gen. mgr., Birmingham) CrSt
Ga.: 1 crst plant

*Casper Stolle Quarry Co., East St. Louis, Ill. (F. W. Stolle, pres.; Carl A. Stolle, pur. agt.) CrSt
Ill.: 2 crst plants, 760,000 tons

Sturgeon Bay Co., Cleveland, O. (H. S. Bain) CrSt
Wis.: 1 crst plant, 1,250,000 tons

Sturm & Dillard Co., Columbus, O. (Chas. H. Purdum, Syracuse, Ind.) SG
Ind.: 1 sg plant, 250,000 tons
Ohio: 1 sg plant, 400,000 tons

*Sunbeam Quarries Co., Clermont, Ky. (T. J. Beam, sec.-treas.) CrSt
Ky.: 1 crst plant, 330,000 tons

Tennessee-Arkansas Gravel Co., Arkansas City, Ark. (C. C. Hawkins, pres.) SG
Ark.: 2 sg plants, 550,000 tons

Tennessee Valley Sand & Gravel Co., Sheffield, Ala. (L. E. Willson, pres.) SG
Ala.: 1 sg plant, 225,000 tons
Tenn.: 4 sg plants

†Texas Construction Material Co., Houston, Tex. (W. E. Sampson, gen. mgr.) SG
Tex.: 9 sg plants, 4,040,000 tons

*Tower Grove Quarry & Construction Co., St. Louis, Mo. (F. C. Webb, pres.) CrSt
Mo.: 1 crst plant, 60,000 tons

*Trap Rock Co., Minneapolis, Minn. (W. P. Beinhorn, Minneapolis) CrSt
No plant data available

*Union Limestone Co., Youngstown, O. (Wm. M. Andrews, gen. mgr., New Castle, Pa.) CrSt
Pa.: 1 crst plant, 750,000 tons

†Union Sand & Gravel Co., Huntington, W. Va. (J. L. Richmond, treas., gen. mgr.) SG
W. Va.: 2 sg plants

†Van Camp Sand & Gravel Co., Cincinnati, O. (R. E. Van Camp, J. H. Liggett) SG
Ohio: 1 sg plant, 500,000 tons

Victory Sand & Stone Co., Topeka, Kan. (M. M. Small, sec., gen. mgr.) SG
Kan.: 1 sg plant, 200,000 tons

Wabash Sand & Gravel Co., Terre Haute, Ind. (J. H. Swango, sec.-treas.) SG
Ind.: 2 sg plants, 575,000 tons

*Wallace Stone Co., Bay Port, Mich. (R. N. Wallace, sec., gen. mgr.) CrSt
Mich.: 1 crst plant, 200,000 tons

Ward Sand & Gravel Co., Oxford, Mich. (F. L. Ward, pres.; L. J. Dyament) SG
Mich.: 1 sg plant, 2,000,000 tons

*†Warner Co., Philadelphia, Pa. (Charles Warner, pres.; A. Foster, Jr., vice-pres., sand and gravel plants) CrSt-SG
N. J.: 2 sg plants, 1,425,000 tons
Pa.: 2 sg plants, 3,090,000 tons
3 crst plants, 1,815,000 tons

Washington Building Lime Co., Baltimore, Md. (Daniel Baker, Jr.)
Ohio: 1 lime plant
W. Va.: 1 lime plant

Waukesha Lime & Stone Co., Waukesha, Wis. (A. A. Laun, Jr.; M. O. Gillan) CrSt-SG
Wis.: 2 crst plants, 197,500 tons
1 sg plant, 370,000 tons

Waukesha Washed Sand & Gravel Co. Milwaukee, Wis. (Geo. G. Brew, pres.) SG
Wis.: 3 sg plants

Wedron Silica Co., Chicago, Ill. (A. Warsaw, pres.) SG
Ill.: 1 sg plant, 350,000 tons

†Western Indiana Gravel Co., Lafayette, Ind. (M. A. Neville, vice-pres., gen. mgr.) SG
Ill.: 1 sg plant, 150,000 tons
Ind.: 7 sg plants, 1,725,000 tons
Mich.: 1 sg plant, 275,000 tons

Western Limestone Products Co. Omaha, Neb. (H. E. Schellberg, pres.) CrSt
Neb.: 3 crst plants, 840,000 tons

†Western Sand & Gravel Co., Spring Valley, Ill. (Lyle C. Sitterly, treas., gen. supt.) SG
Ill.: 2 sg plants, 900,000 tons

Western Sand & Gravel Co., Lincoln, Neb. (W. M. Stoner, pres.) SG
Neb.: 1 sg plant, 300,000 tons

*Weston & Brooker Co., Columbia, S. C. (T. I. Weston, pres.) CrSt
Ga.: 1 crst plant, 450,000 tons
S. Caro.: 2 crst plants, 350,000 tons
(1 plant only)

Weston Sand & Gravel Co., Logtown, Miss. (Harold B. Weston, vice-pres.) SG
Miss.: 1 sg plant

*West Penn Cement Co., Butler, Pa. (F. C. McKee, vice-pres.) CrSt
Pa.: 1 crst plant, 150,000 tons

*West Roxbury Trap Rock Co., West Roxbury, Mass. (Bernard A. McKinney, gen. mgr., supt.) CrSt
Mass.: 1 crst plant, 150,000 tons

†West Sand Co., Muskogee, Okla. (H. E. West, owner) SG
Okla.: 2 sg plants, 120,000 tons

Whitehead Bros. Co., New York, N. Y. (Alfred J. Miller, pres.) SG
Mass.: 2 sg plants
N. J.: 16 sg plants
N. Y.: 30 sg plants
R. I.: 1 sg plant

White Rock Quarries, Inc., Kansas City, Mo. (H. P. Thompson) CrSt
No plant data available

Whitney Materials Co., Duluth, Minn. (F. G. Wood, vice-pres.) SG
Minn.: 1 sg plant, 350,000 tons
Wis.: 1 sg plant, 175,000 tons

Wilson Sand & Supply Co., Huntington, W. Va. (A. B. Rawn) SG
W. Va.: 2 sg plants

Winona Sand & Gravel Co., Winona, Minn. (L. E. Luth) SG
Minn.: 4 sg plants

Woodstock Slag Corp., Birmingham, Ala. (Geo. A. Mattison, Jr., vice-pres., gen. mgr.) Slag
Ala.: 2 slag plants, 650,000 tons

†Yahola Sand & Gravel Co., Muskogee, Okla. (W. W. Dills, pres.) SG
Okla.: 4 sg plants, 660,000 tons

†Chas. H. Young Co., Minneapolis. (Chas. H. Young) SG
No plant data available

Zanesville Gravel Co., Dresden, O. (J. J. Gorman, pres., Zanesville) SG
Ohio: 1 sg plant, 200,000 tons

Schundler (from page 26)

The plant is located at 600 Railroad St., Joliet, Ill., several miles southwest of the downtown section. The property line on one side is on Illinois State Highway 7 and the other on the north bank of the lakes-to-gulf waterway. As the plant is inside the switching limits of Joliet, direct railway shipments can be made in all directions.

The Zonolite Plant.—The zonolite plant occupies a separate building alongside the main plant. The raw zonolite is received crushed and screened to various sizes and is stored in large floor bins. It is loaded by hand into barrows and dumped to a small hopper from which a reciprocating feeder discharges it to the boot of a bucket-elevator. The elevator discharges into a cascade-type furnace which is fired with gas and was developed especially for this purpose. It is automatically kept at a temperature between 1,500 and 2,000 deg. F.

The zonolite in its raw state is a hydrated alteration product of mica, a magnesium-aluminum silica containing 5 per cent. water of hydration. When subjected to heat this material swells until it weighs only 6 lb. per cu. ft. compared to 70 lb. per cu. ft. in its raw state. A temperature of at least 1,500 deg. is required for the best results.

The elevator feeding the furnace is belt- and gear-driven by a 2-hp. motor. The feeder is driven from the tail pulley of the elevator. A Leeds-Northrup temperature-recording potentiometer is connected to the furnace and adjusts the speed of the elevator motor to keep the furnace at any desired temperature. When the temperature drops below 1,500 deg., it shuts off the feed.

The expanded zonolite drops from the furnace to a stone-lined pit, from which it is sucked through a pipe by a Sturtevant fan driven by a 5-hp. motor. A baffle in this pipe ahead of the fan diverts the zonolite downward into a divided cyclone-type bin, one section being filled while the other, closed at the top, discharges to sacks. This was found to be necessary, as the slight suction through this spout prevented this light material from dropping into the sacks. The dust is sucked by the fan into a dust chamber and is used in some products, such as insulating cement, made by the company. When any special size of raw or finished zonolite is desired and is not on hand, the elevator can feed a 2-ft. by 6-ft. Productive Equipment Co. double-deck Jigger vibrating screen which is driven by a 2-hp. General Electric motor through a flat belt.

This plant has a capacity of 1 ton per hr. or more, or 125 bags of 3 cu. ft. each. A new building being added to the zonolite plant will be used for the manufacture of insulated board, pipe covering, etc.

The zonolite is used for home insulation, water tanks, vacuum jugs, acoustical tile, insulating cement and plaster, and other similar purposes.

The main office of the company is at the Joliet plant. F. E. Schundler is president and general manager; C. Marshall is vice-president, L. H. Sprague is secretary and treasurer. The company also operates another similar plant at Building 64, Bush Terminal, Brooklyn, N. Y.

What the Federal Public-Works Program Means to Construction Field

By EDWARD J. MEHREN
President, Portland Cement Assn.

EVERY person engaged in any of the many branches of the construction industry is asking himself and others a question which runs something like this: "How will the federal building program benefit me?"

While no one expects a definite answer to this query, it is certain that those engaged in construction as producers of raw materials, manufacturers or contractors are going to be helped mightily. It is equally clear that the stimulating effect of the National Industrial Recovery Act and other administration activities will produce a benefit to the construction industries extending far beyond the $3,300,000,000 actually set aside for construction.

The prime objective of the federal program is to provide jobs, but jobs in construction carry benefits to a gamut of industries that affect the well-being of the entire population.

(1) Through construction employment men will be provided with more funds than those required for bare subsistence. Three million men probably will receive jobs. The consumption of goods will increase.

(2) The public-works program calls for the use of credit which private industry can not use or cares not to use at present levels of consumption. This government-induced flow of credit will contribute to the return of normal business.

(3) The fact that $3,300,000,000 is ready in Washington to be placed at work has a psychological value that will induce private spending.

(4) All these forces will tend to revive the all but vanished private construction.

Much of the value of the program is dependent upon the speed with which it gets under way. Early predictions in Washington indicate that road contracts will be let at the rate of from $30,000,000 to $50,000,000 per month. Probably in excess of $25,000,000 worth of federal public-building contracts and $25,000,000 in army construction will be let by Oct. 1.

In addition millions of dollars worth of construction will be started promptly by states, counties and municipalities. New York, for instance, is planning a $350,000,000 program with $29,000,000 to be launched monthly. Projects from coast to coast are being made ready, so that at present immediate and widespread construction is expected.

Whether construction is to be continuous, without serious let-down during the winter, is also of importance to the construction industries. While modern builders know that they can build in winter, the public and public officials generally are still unaware that winter offers few more hazards than summer.

Winter construction means steady employment, stabilized demand for materials and supplies, and continuous spending. With July upon us many large projects may be deferred because of the impossibility of completing them before winter. Even in normal times the winter let-down has been costly to the construction industries. If building stops this coming winter, much of the value of this summer's construction to workers and to the construction industries will be nullified. We must make the public realize this. Selling winter construction is a job these industries must do for themselves.

Among the industries to benefit first from the public-works program will be the producers of stone, gravel, sand and cement. At present these basic industries are probably as stagnant as they have ever been. If your own books are not sufficient evidence, turn to unemployment figures which show that last year 80 per cent. of the 2,500,000 men employed in the building trades, who use much of these materials, were out of work. These figures do not include common labor.

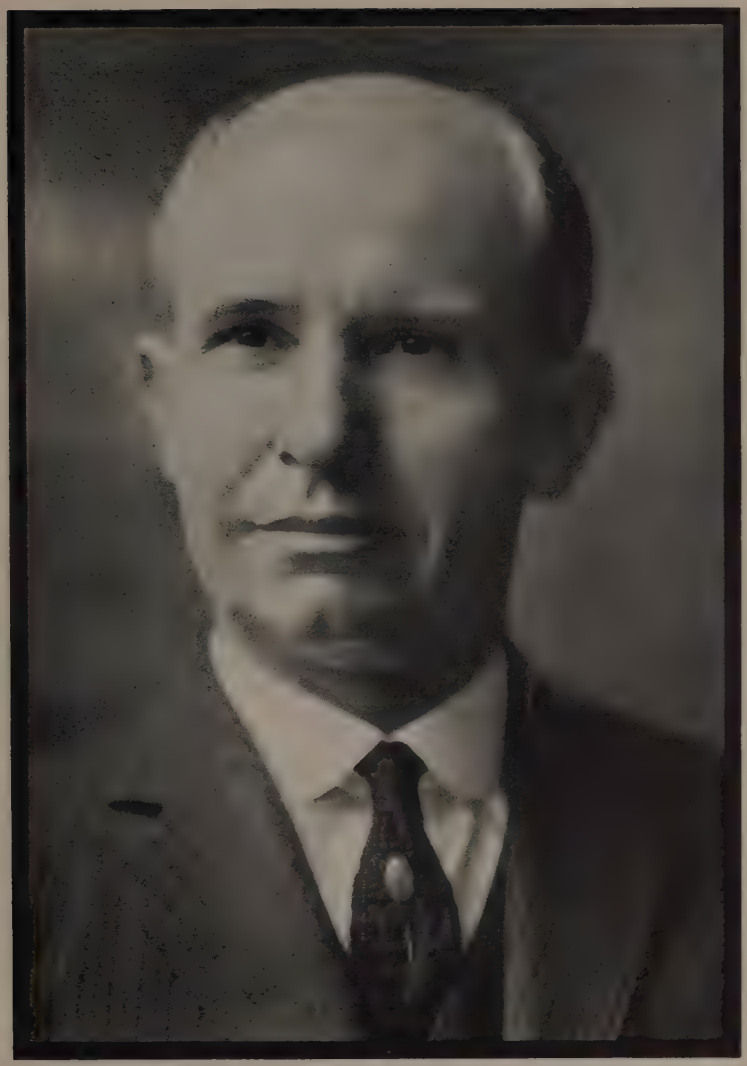
But better days are ahead. Consider alone the minimum of $400,000,000 which has been designated for federal-aid roads and streets. Normally, about 20,000,000 sq. yd. of concrete pavement are included, in addition to considerable other work, in each $100,000,000 of federal-aid projects. On this basis the new program will call for something like 12,480,000 cu. yd. of coarse aggregate, 7,040,000 cu. yd. of sand, and 24,000,000 bbl. of cement.

Much of the remaining $2,900,000,000 will be spent for structures which must call upon the mineral industries for vast volumes of materials. The proposed Midtown Tunnel in New York, it is estimated, will require about 400,000 cu. yd. of sand and gravel and 400,000 bbl. of cement.

Emphasis is placed in the federal program on structures that have to do with traffic relief and matters of health and sanitation. This means large numbers of mass structures, such as bridges, separated grade-intersections, railroad grade-crossings, water-works, reservoirs, and sewage-treatment and disposal facilities. Sewage-treatment plants, for example, require approximately 60,000 bbl. of cement and 50,000 cu. yd. of sand and aggregate for each $1,000,000 of expenditure.

Aside from the producers of raw materials there are some 48 classifications of manufacturing industries which constitute the link between raw materials and those engaged in actual building. These industries normally employ about 1,000,000 workers, one tenth of the wage earners in all manufacturing industries. Like the producers of basic materials, these manufacturing industries penetrate every part of the country, and they require no inconsiderable volume of pit and quarry products.

MEN OF THE INDUSTRY



ROBERT J. POTTS

ROBERT J. POTTS, president of the Potts-Moore Gravel Co., Waco, Tex., has for many years been a leading figure in the aggregate-production and construction activities of that state. With degrees of A.B., B.S. and C.E. he became professor of mathematics and civil and highway engineering. He entered the contracting field as a member of Potts & Prentice. Mr. Potts is regarded as the father of the modern road movement in Texas and is responsible for much highway legislation. He has been an active member of the National Sand & Gravel Assn. and was its president from 1930 to 1932. At the recent code meetings of the mineral-aggregates industries he took an active part and was a member of the general committee.

Personal Mention

John A. Blank, consulting chemist, Compania de Cemento Portland "Landa," S. A., Puebla, Mexico, has returned to his home at Ironton, O., after having spent the greater part of the past year at Puebla assisting the Landa company in the development and placing on the market of new cements.

Frank T. Sheets, former chief highway engineer of the state of Illinois, has been appointed as consulting engineer for the Portland Cement Ass'n. His present headquarters are in Chicago but he is retaining his residence in Springfield.

H. S. Sparks has been appointed superintendent of the El Paso, Texas, plant of the Southwestern Portland Cement Co., succeeding the late H. E. Nichols.

P. H. Brandt has joined the engineering department of the Hydrotator Co., Cleveland, O., as development engineer. Mr. Brandt has been engaged in development work for the past 20 years, during which time he has worked for the Wellman Engineering Co., formerly known as the Wellman-Seaver Morgan Co., the Bartlett-Snow Co., the Lakewood Engineering Co., now a part of the Jaeger Mfg. Co., and the Una Welding Co.

Mark E. Smith has been made general manager in charge of the operations of the Kelly Sand & Material Co., Burlington, Ia. He has been with this firm for 12 years.

George D. Breck was recently appointed representative for the Kennedy-Van Saun Mfg. & Eng. Corp. with offices at 2077 E. Fourth St., Cleveland, O. Prior to joining this organization Mr. Breck represented the Babcock & Wilcox Co. in the same territory. He was with this company for 22 years and served as sales manager of the central district for the past few years. Wallace F. Schott, is associated with him in his new position.

H. Griffiths, Strathfield, New South Wales, was the recipient of the only bronze medal awarded this year in the Sir Henry Maybury Competition of the Institute of Quarrying. The gold medal was not awarded this year.

L. W. Grothaus has been appointed assistant to the president of the Allis-Chalmers Mfg. Co., Milwaukee, Wis., his immediate duties being the direction of the company's interests in matters pertaining to the Nat'l Industrial Recovery Act as they relate to commercial problems. Mr. Grothaus has been with the company since 1904 and served in many important capacities until he was appointed general representative in January, 1932. **Walter Geist,** who succeeds Mr. Grothaus in this position has been with the company since 1909.

Edgar Stilley has been appointed by the Chain Belt Co., Milwaukee, Wis., as its direct factory representative in the states of Maryland, North Carolina and Virginia.

Obituary

Theodore G. Dickinson, 77, founder and president of the Marquette Portland Cement Co., died on July 2 at his home near Libertyville, Ill. His death was attributed to heart disease from which he had suffered for several years. He had returned from a trip to Europe for his health only a few weeks before his death.

Mr. Dickinson was born in Hadley, Mass., and came to Chicago with his parents at the age of 27. He established the Marquette company 30 years ago and was president from the beginning. He leaves a son, Robert B. Dickinson, and a daughter, Rose L. Dickinson.

Ernest D. Brimley, 58, general foreman of the plant of the Union Portland Cement Co. at Devil's Slide, Utah, died recently at his home in Morgan, Utah.

Orrin W. Robertson, president of the Western Lime & Cement Co., Milwaukee, Wis., died on June 23.

H. E. Nichols, superintendent of the El Paso, Texas, plant of the Southwestern Portland Cement Co., died on July 2 in that city. Mr. Nichols had been superintendent since 1925 and assistant superintendent for a number of years before that.

Michael Toole, 49, an employe of the Tunkhannock Gravel & Sand Co., La Grange, Pa., was killed recently when a plant building collapsed, pinning him underneath it.

Plato Hancock, 58, owner of the Albany Mills, Albany, Ky., died recently as a result of injuries received when he attempted to throw off a belt on a rock crusher while it was in operation.

Joseph Luniak, 50, was electrocuted on July 21 at the plant of the Western Lime & Cement Co., High Cliff, Wis. In loading his truck under a metal bin he grasped the cable controlling the bin gate while standing in a pool of water. Due to a short circuit the bin was charged with 350 volts which passed through his body killing him instantly.

William Acheson Smith, 54, president of the Acheson Graphite Corp., and vice president of the National Carbon Co., both subsidiaries of the Union Carbide & Carbon Corp., died recently after a 3-week illness.

Patents Issued for New Types of Cements

Patents have been issued to Alton J. Blank, general superintendent of the Landa cement company, Pueblo, Mexico, for the production of a new type of cement known as "Atoyac" and a plaster and mortar cement known as "Plastocement." These new products have been marketed for several months in Mexico and it is said that plants in the United States will soon be licensed to manufacture them.

French Quarry Annual Now Being Distributed

Mines, Carrieres & Grandes Entreprises, 109 Boulevard Lefebvre, Paris, France, now has available for distribution the 1932-33 Edition of its Quarry Annual. This edition is in 3 parts. The first contains general and administrative information, the second a list of French quarries classed by mineralogical groups and classes of materials, and the third is a list of the principal producers in the various industries.

Coming Events

Aug. 10, 1933. Chicago. Code of Fair Competition Meeting, Gypsum Assn., at the Bismarck Hotel.

October 2-6, 1933, Chicago, Ill.— Twenty-second Annual Safety Congress, National Safety Council, Stevens Hotel. W. H. Cameron, secretary, 20 N. Wacker Drive, Chicago, Ill.

Latest Portland-Cement Statistics

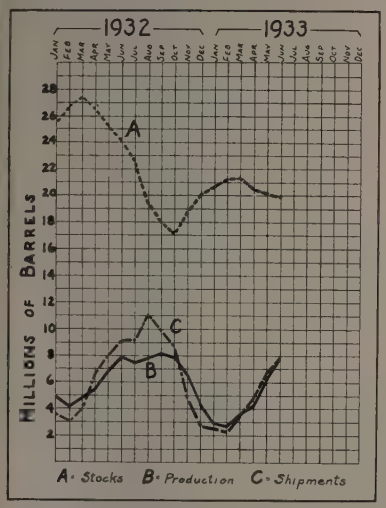


Chart showing monthly production, shipments and stocks on hand at end of month from January, 1932, to June, 1933.

THE Portland-cement industry in June, 1933, produced 7,804,000 bbl., shipped 7,979,000 bbl. from the mills, and had in stock at the end of the month 19,942,000 bbl. Production of Portland cement in June, 1933, showed a decrease of 1.5 per cent. and shipments a decrease of 13.9 per cent., as compared with June, 1932. Portland-cement stocks at mills were 17.1 per cent. lower than a year ago.

The statistics here given are compiled from reports for June, received by the Bureau of Mines, from all manufacturing plants except three, for which estimates have been included in lieu of actual returns.

In the following statement of relation of production to capacity the total output of finished cement is compared with the estimated capacity of 164 plants at the close of June, 1933, and of 165 plants at the close of June, 1932.

RATIO (*per cent.*) OF PRODUCTION TO CAPACITY (*164 plants*)

	June		May	April	March
	1932	1933	1933	1933	1933
The month	35.7	35.2	27.4	18.9	16.1
The 12 months ended	36.5	26.0	26.0	26.2	26.7

PRODUCTION, SHIPMENTS, AND STOCKS OF FINISHED PORTLAND CEMENT, BY MONTHS, IN 1932 AND 1933 (*In thousands of barrels*)

Month	Production		Shipments		Stocks At End of Month	
	1932	1933	1932	1933	1932	1933
January	5,026	2,958	3,393	2,502	25,778	20,624
February	3,971	2,777	3,118	2,278	26,657	21,125
March	4,847	3,684	3,973	3,510	27,545	21,298
April	5,478	4,183	6,536	4,949	26,496	20,542
May	6,913	a6,262	8,020	a6,709	25,394	a20,117
June	7,921	7,804	9,264	7,979	24,043	19,942
July	7,659	.....	9,218	.....	22,512	.....
August	7,835	.....	10,968	.....	19,398	.....
September	8,210	.....	9,729	.....	17,878	.....
October	7,939	.....	8,743	.....	17,084	.....
November	6,462	.....	4,782	.....	18,788	.....
December	4,248	.....	2,835	.....	20,205	.....
Totals	76,509	.....	80,579	.....	.....	.....

PRODUCTION AND STOCKS OF CLINKER BY MONTHS, IN 1932 AND 1933 (*In thousands of barrels*)

Month	Production		Stocks End of Month		Month	Production		Stocks End of Month	
	1932	1933	1932	1933		1932	1933	1932	1933
January	6,107	3,036	8,184	6,092	July	6,613	.....	7,889	.....
February	5,176	3,110	9,375	6,422	August	7,078	.....	7,175	.....
March	5,443	4,147	10,025	6,890	September	7,703	.....	6,708	.....
April	5,924	4,520	10,511	7,146	October	7,259	.....	6,093	.....
May	6,273	a5,848	9,922	a6,769	November	6,290	.....	5,938	.....
June	6,803	7,836	8,877	6,840	December	4,335	.....	5,995	.....

a Revised.

DISTRIBUTION OF CEMENT

Shipped to—	April (*a*)		May		Shipped to—	April (*a*)		May	
	1932	1933	1932	1933		1932	1933	1932	1933
Alabama	44,565	117,113	26,007	130,896	New Jersey	297,700	184,998	354,171	252,625
Alaska	524	1,074	2,259	903	New Mexico	24,577	39,006	20,550	11,972
Arizona	15,893	10,305	15,430	13,226	New York	970,867	503,554	1,095,796	874,417
Arkansas	14,534	77,517	17,496	83,686	North Carolina	55,225	39,612	52,396	41,121
California	455,498	410,282	400,264	489,827	North Dakota	19,740	12,777	22,113	17,159
Colorado	61,974	35,589	60,878	30,148	Ohio	310,376	200,272	392,409	292,022
Connecticut	94,490	45,492	114,826	123,156	Oklahoma	123,596	170,719	124,276	155,381
Delaware	28,895	32,078	38,984	47,636	Oregon	71,357	35,296	58,860	44,353
Dist. of Col	97,351	73,324	94,829	91,904	Pennsylvania	427,501	353,170	450,430	498,529
Florida	39,674	58,331	33,183	73,109	Porto Rico	5,645	9,613	4,875	7,191
Georgia	82,155	64,568	93,256	53,172	Rhode Island	31,523	20,577	37,280	47,818
Hawaii	29,953	14,145	26,370	11,044	South Carolina	55,309	26,081	43,529	26,530
Idaho	12,480	10,062	10,963	11,455	South Dakota	27,070	17,808	20,924	34,370
Illinois	335,544	171,203	703,571	177,861	Tennessee	98,855	136,572	103,203	128,277
Indiana	157,969	108,666	310,262	172,464	Texas	403,806	354,811	358,964	360,532
Iowa	145,776	97,511	182,684	193,695	Utah	15,997	16,320	16,116	15,926
Kansas	126,952	90,448	127,362	81,970	Vermont	15,312	10,431	25,911	13,794
Kentucky	90,728	113,952	127,033	149,151	Virginia	86,856	91,407	88,465	100,649
Louisiana	58,675	48,230	79,682	64,344	Washington	163,168	67,365	199,080	52,800
Maine	26,384	15,658	36,870	33,625	West Virginia	65,620	59,766	86,484	54,844
Maryland	140,479	81,995	168,539	78,427	Wisconsin	176,417	90,703	227,413	178,181
Massachusetts	209,812	94,101	249,071	193,170	Wyoming	7,547	5,608	10,626	8,131
Michigan	179,013	98,938	304,783	295,721	Unspecified	24,551	11,306	7,406	5,235
Minnesota	164,514	108,377	348,504	210,463		6,514,855	4,866,087	7,983,982	6,634,362
Mississippi	25,123	45,380	14,928	50,862	Foreign countries	21,145	82,913	36,018	74,638
Missouri	250,745	140,758	442,725	227,115					
Montana	18,034	14,012	12,840	20,183					
Nebraska	68,633	173,435	71,205	225,751	Total shipped from cement plants	6,536,000	4,949,000	8,020,000	b6,709,000
Nevada	36,163	41,035	47,891	51,316					
New Hampshire	23,710	14,736	20,082	26,225					

a Includes estimated distribution of shipments from 3 mills each month.
b Revised figures.

PRODUCTION AND STOCKS OF CLINKER (Unground Cement), BY DISTRICTS, in MAY, 1932 and 1933 (*In thousands of barrels*)

District	Production		Stocks at end of Month	
	1932	1933	1932	1933
Eastern Pa., N. J., and Md	1,456	1,691	1,079	957
New York and Maine	625	583	760	306
Ohio, Western Pa., and W. Va	458	860	825	755
Michigan	515	628	1,215	921
Wis., Ill., Ind., and Ky	809	988	1,004	817
Va., Tenn., Ala., Ga., Fla., and La	445	588	434	454
Eastern Mo., Ia., Minn., and S. Dak	998	780	611	376
W. Mo., Neb., Kan., Okla., and Ark	541	410	789	264
Texas	280	361	284	187
Colo., Mont., Utah, Wyo., and Idaho	174	188	146	238
California	372	621	1,498	1,332
Oreg. and Wash	130	138	232	233
Totals	6,803	7,836	8,877	6,840

a Revised.

PRODUCTION, SHIPMENTS, AND STOCKS OF FINISHED PORTLAND CEMENT, BY DISTRICTS, IN MAY, 1932 AND 1933, AND STOCKS IN APRIL, 1933 (*In thousands of barrels*)

District	May						Stocks at End of May *a*
	Production		Shipments		Stocks at End of Month		
	1932	1933	1932	1933	1932	9133	1933
Eastern Pa., N. J., and Md	1,389	1,635	1,747	1,525	5,140	3,856	3,746
New York and Maine	822	573	917	675	1,697	1,293	1,396
Ohio, Western Pa., and W. Va	645	839	785	862	2,889	2,657	2,680
Michigan	544	651	676	738	2,080	1,567	1,654
Wis., Ill., Ind., and Ky	1,128	1,016	1,419	1,020	3,272	2,459	2,463
Va., Tenn., Ala., Ga., Fla., and La	603	547	532	602	1,830	1,451	1,506
Eastern Mo., Ia., Minn., and S. Dak	1,103	805	1,320	811	3,218	2,665	2,672
W. Mo., Neb., Kan., Okla., and Ark	563	487	637	564	1,269	1,294	1,370
Texas	335	347	324	298	695	728	678
Colo., Mont., Utah, Wyo., and Idaho	157	231	128	137	407	486	391
California	464	602	590	658	975	1,081	1,138
Oreg. and Wash	168	71	189	89	571	405	423
Totals	7,921	7,804	9,264	7,979	24,043	19,942	20,117

a Revised.

Aggregates Shipments

By H. H. HUGHES and A. T. COONS

Bureau of Mines, Department of Commerce

AVAILABLE statistics of the aggregates industries have been confined to annual canvasses of the U. S. Bureau of Mines and to the census of mines and quarries conducted for 1929 by the U. S. Bureau of the Census. Although these agencies include in their final reports a geographical breakdown of the data by states, this information normally can not be compiled for several months following the close of the year.

In order to decrease this lag quarterly figures of railway shipments of aggregates have been interpreted in their relationship to the crushed-stone, sand-and-gravel, and furnace-slag industries. Previous installments of this series have reported total figures for the United States.

Realizing the limitations of national statistics in the solution of local problems, data are herein assembled to indicate varying conditions in the eight regions established by the Interstate Commerce Commission. The boundaries of these regions are shown in Fig. 1. Unfortunately, with the exception of New England, they do not conform geographically with Census or Federal Reserve Board districts, or with other divisions for which supplementary data are available. In spite of these shortcomings an analysis of regional data reveals interesting relationships.

The circles shown on the map (Fig. 1) are drawn to scale to show graphically the relative magnitude of total shipments of crushed stone, sand and gravel, and slag originating in each region. The area of each circle represents shipments during the first quarter of 1932, whereas each dark sector shows the percentage of decline in 1933. In the Northwestern Region, for example, total shipments for three months of 1932 were less than for most regions and, furthermore, first-quarter shipments of 1933 were 58 per cent. less than in the previous year. At the other extreme, the Southern Region had the largest first-quarter shipments in 1932, and 1933 actually showed an increase of 6 per cent.

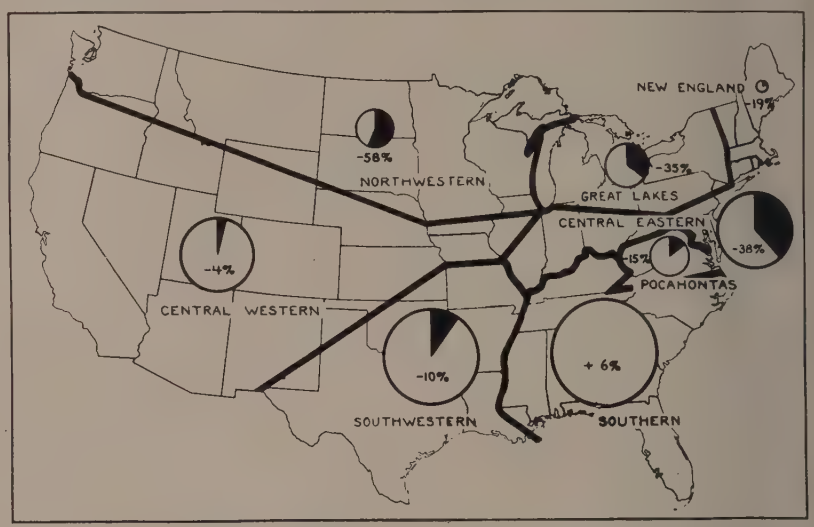


Fig. 1. Aggregates shipments by regions in first quarter of 1933 and 1932. Each circle shows by its total area shipments in 1932; black sector shows decline in 1933.

QUARTERLY SHIPMENTS OF AGGREGATES MATERIALS ON CLASS I ROADS, BY REGIONS, 1928-1933* (*Short tons*)—PART I

Year and Quarter	New England			Great Lakes			Central Eastern			Pocahontas		
	Sand and Gravel	Crushed Stone	Furnace Slag	Sand and Gravel	Crushed Stone	Furnace Slag	Sand and Gravel	Crushed Stone	Furnace Slag	Sand and Gravel	Crushed Stone	Furnace Slag
1928—1st	27,103	49,997	193	531,031	230,286	160,060	1,044,462	638,134	855,340	307,437	120,898	11,739
—2nd	138,072	386,489	238	3,300,886	1,388,828	445,063	4,087,409	2,068,917	1,311,017	432,253	201,610	8,736
—3rd	320,287	537,661	154	4,830,532	2,714,795	703,391	5,889,549	2,933,082	1,645,889	481,290	156,170	15,861
—4th	218,000	217,020	92	2,825,830	1,522,635	497,128	3,871,498	1,931,815	1,594,856	463,630	136,366	7,212
Total	703,462	1,191,167	677	11,488,279	5,856,544	1,805,642	14,890,491	7,697,306	5,407,872	1,684,610	615,044	43,548
1929—1st	28,070	21,784	219	409,401	235,039	219,060	1,010,688	508,758	970,213	188,310	61,777	13,035
—2nd	195,647	289,749	145	3,121,441	1,646,897	494,103	3,959,796	2,025,000	1,273,749	367,969	118,386	23,514
—3rd	270,966	471,081	115	4,588,287	2,640,324	806,933	5,458,037	3,340,716	2,301,605	461,153	214,642	31,947
—4th	138,896	166,736	28	2,360,312	1,311,944	590,999	3,461,330	1,966,969	1,965,171	330,419	214,468	33,005
Total	633,579	949,350	507	10,479,441	5,834,204	2,111,095	13,909,320	7,849,821	6,510,798	1,347,851	609,273	101,501
1930—1st	41,107	46,653	215	460,066	349,036	235,879	1,063,402	638,441	1,986,448	234,049	81,894	21,659
—2nd	195,716	311,571	108	2,968,434	1,757,435	581,239	3,523,777	2,173,558	2,888,104	511,573	219,558	27,389
—3rd	319,185	419,014	18	4,034,725	2,419,643	721,447	4,391,165	2,643,898	2,082,114	666,298	329,181	29,106
—4th	144,822	167,938	153	2,041,648	1,056,803	300,371	2,308,572	1,300,601	942,331	433,706	146,384	8,835
Total	716,117	1,086,226	494	9,489,586	5,441,867	1,838,936	11,286,916	6,756,498	7,898,997	1,845,626	777,017	86,989
1931—1st	12,520	16,357	31	215,105	212,900	87,724	788,529	393,834	475,835	234,717	66,233	18,354
—2nd	117,047	315,389	27	1,963,507	1,463,643	236,105	2,133,801	1,618,154	677,456	467,317	134,271	12,533
—3rd	181,058	405,491	20	2,405,639	2,337,478	346,340	2,403,435	2,059,130	745,275	405,861	194,772	4,039
—4th	88,093	199,980	.....	1,073,902	833,762	299,839	1,428,544	1,150,040	792,218	282,953	156,083	4,625
Total	398,718	937,217	78	5,658,153	4,847,783	970,008	6,754,309	5,221,158	2,690,781	1,390,848	551,359	39 551
1932—1st	5,800	13,562	.....	102,360	97,126	100,729	385,712	278,447	263,275	165,702	77,971	3,075
—2nd	33,495	159,052	.....	878,797	624,430	139,398	1,081,441	817,419	283,943	223,982	98,394	21,359
—3rd	45,736	244,193	87	1,165,833	1,012,623	165,713	1,328,499	1,198,378	300,918	324,362	129,269	46,513
—4th	42,077	95,319	.....	733,662	412,216	100,467	993,585	753,085	289,288	224,816	109,607	10,729
Total	127,108	512,126	87	2,880,652	2,146,395	506,307	3,789,237	3,047,329	1,137,424	938,865	415,241	81,676
1933—1st	4,085	11,681	.....	86,309	56,161	52,705	287,913	224,146	157,860	101,714	82,561	346

*Compiled from Freight Commodity Statistics of the Interstate Commerce Commission. Quarterly data are from quarterly reports, totals from annual reports; any minor discrepancies in totals may be due to revisions of quarterly figures before issuance of annual volumes.

Fig. 2 is a graphic presentation of the data given in the accompanying table. Although shipments of slag are reported in all regions, they are too small to be shown on the diagram except in the Great Lakes, Central Eastern, and Southern Regions. It must be remembered that these figures represent only railway shipments. No attempt has been made to adjust for truck or barge traffic in aggregates, or for any change in the ratio of railway to truck or barge tonnage.

Shipments of aggregates in the New England region normally are small in comparison with those in other regions, but the contrast in the first quarter is especially striking. The rigorous northern winters force curtailment of outside activity and, as a result, in New England and other northern regions aggregates shipments show a wide seasonal fluctuation. New England stands alone in that it is the only region in which crushed-stone shipments exceed those of sand and gravel. In common with several of the other regions, the demand for crushed stone in New England, as expressed in railway shipments, held up better in 1932 than that for sand and gravel. This, however, does not mean necessarily that stone is displacing gravel. Total figures for the United States show that the diversion of traffic from railways to trucks is more pronounced for sand and gravel than for crushed stone, and this trend is indicated by the regional data. Furthermore, highway programs to aid the unemployed may have benefited crushed stone to a greater extent than sand and gravel. In general, road construction affords the best market for stone, and building construction for gravel. Increased interest in secondary-road construction also favors crushed stone. Viewing the situation in the light of all these factors, it is not surprising to find crushed-stone shipments in all regions maintained at a higher level comparatively than sand and gravel.

Furnace slag reaches a maximum in

(*Continued on page 48*)

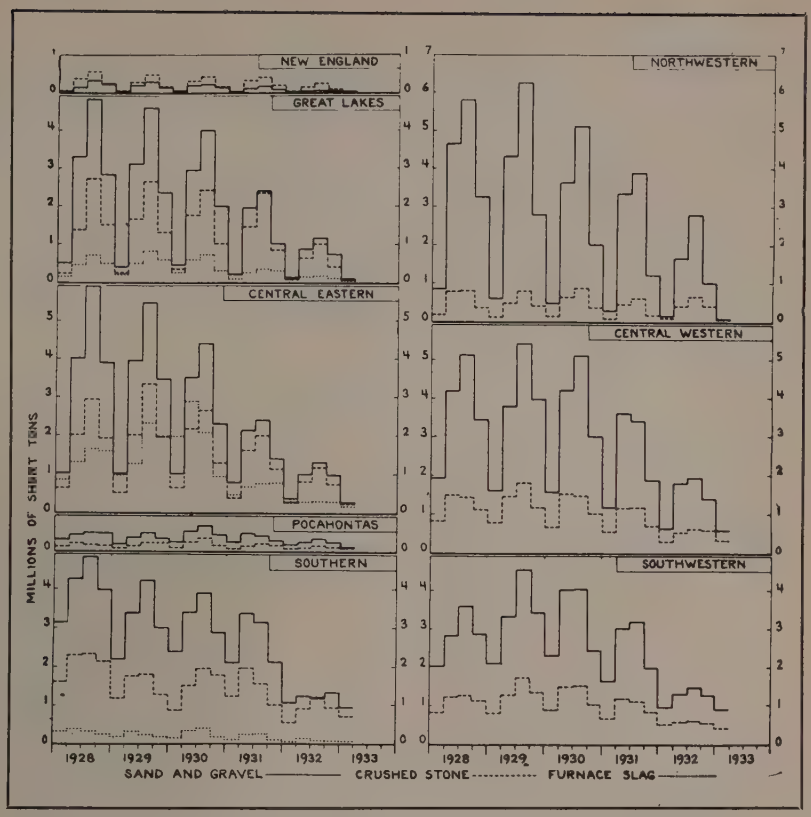


Fig. 2. Quarterly shipments of crushed stone, sand and gravel and slag by regions, 1928-1933. Slag shipments in five sections omitted because too small to be shown on chart.

QUARTERLY SHIPMENTS OF AGGREGATES MATERIALS ON CLASS I ROADS, BY REGIONS, 1928-1933[a] (*Short tons*)—PART II

Year and Quarter	Southern			Northwestern			Central Western			Southwestern		
	Sand and Gravel	Crushed Stone	Furnace Slag	Sand and Gravel	Crushed Stone	Furnace Slag	Sand and Gravel	Crushed Stone	Furnace Slag	Sand and Gravel	Crushed Stone	Furnace Slag
1928—1st	3,153,469	1,639,749	323,053	858,086	181,158	721	1,942,533	817,101	4,282	2,049,519	840,595	59,830
—2nd	4,286,896	2,318,280	390,707	4,642,206	781,597	488	4,197,497	1,491,329	896	2,828,289	1,282,348	54,888
—3rd	4,841,064	2,345,168	331,083	5,813,386	805,925	691	5,127,406	1,459,041	387	3,576,100	1,290,539	58,651
—4th	4,013,817	2,156,654	247,404	3,263,837	369,143	2,525	3,443,443	1,114,020	4,786	2,848,419	1,139,948	41,424
Total	16,308,643	8,521,397	1,292,328	14,577,515	2,137,823	4,425	14,711,830	4,880,540	10,351	11,302,327	4,566,638	219,641
1929—1st	2,204,970	1,194,453	187,792	600,200	108,538	2,045	1,633,353	767,816	2,491	2,113,285	805,145	40,465
—2nd	3,392,358	1,768,427	326,001	4,314,429	496,597	1,630	3,790,394	1,465,091	3,028	3,321,134	1,289,428	39,994
—3rd	4,231,040	1,822,672	233,676	6,251,355	810,422	4,118	5,432,492	1,813,781	713	4,515,061	1,730,413	40,302
—4th	3,079,150	1,291,580	199,989	2,786,732	409,509	1,439	3,960,600	1,167,596	1,427	3,411,325	1,344,962	25,596
Total	12,907,518	6,077,132	947,458	13,952,716	1,825,066	9,232	14,816,839	5,214,284	7,659	13,360,805	5,169,948	146,357
1930—1st	2,394,971	882,119	148,496	475,736	144,458	1,438	1,579,207	641,222	334	2,295,187	873,230	25,879
—2nd	3,421,228	1,534,630	335,791	3,634,027	632,253	2,837	4,216,730	1,513,661	538	4,030,727	1,505,193	22,335
—3rd	3,932,667	1,965,538	403,216	5,112,923	883,340	2,381	5,112,591	1,468,451	3,211	4,054,868	1,512,343	16,442
—4th	2,898,867	1,798,189	185,593	2,002,529	337,146	1,330	3,053,828	1,005,918	2,731	2,429,553	1,066,886	21,963
Total	12,647,690	6,180,519	1,073,096	11,225,215	1,997,197	7,986	13,962,356	4,629,252	6,814	12,810,335	4,958,224	86,619
1931—1st	2,123,202	1,247,690	105,252	295,767	74,129	1,576	1,180,091	509,682	1,657	1,616,112	636,277	2,405
—2nd	3,396,595	1,981,203	235,296	3,346,662	443,755	1,133	3,628,423	1,148,002	138	2,977,601	1,171,406	3,197
—3rd	3,169,176	1,570,230	238,374	3,871,595	602,833	416	3,419,770	1,160,464	588	3,161,039	1,076,285	3,647
—4th	2,136,573	1,031,637	102,634	1,220,429	192,176	794	1,862,511	655,082	762	1,954,013	803,107	2,875
Total	10,826,305	5,830,001	681,556	8,734,453	1,312,893	3,919	10,090,795	3,473,230	3,145	9,708,856	3,687,075	12,124
1932—1st	1,061,509	540,403	43,842	131,998	98,949	799	607,427	276,555	259	913,664	465,442	2,175
—2nd	1,240,663	917,076	135,206	1,656,244	401,841	473	1,781,751	498,771	.....	1,252,233	558,545	6,958
—3rd	1,185,948	1,215,920	93,173	2,802,315	642,919	435	1,942,560	591,156	50	1,449,499	585,416	4,325
—4th	1,339,696	938,657	91,132	1,050,104	410,238	391	1,396,216	566,819	85	1,217,138	518,384	424
Total	4,827,816	3,612,056	363,353	5,640,661	1,553,947	2,098	5,727,954	1,933,301	394	4,832,534	2,127,787	13,882
1933—1st	950,751	707,608	79,837	65,727	31,764	229	555,076	296,809	422	855,568	388,010	4,342

[a]Compiled from Freight Commodity Statistics of the Interstate Commerce Commission. Quarterly data are from quarterly reports, totals from annual reports; any minor discrepancies in totals may be due to revisions of quarterly figures before issuance of annual volumes.

Traffic News and Comment

Recent I. C. C. Decisions

Agricultural Limestone.—The commission has awarded reparation on finding that the rate applicable on agricultural limestone and raw dolomite [1] from Ashley Falls, Mass., to E. Hartford, Conn., was $1.30. The rate charged from W. Stockbridge, Mass., to E. Hartford, Conn., was found applicable.—I. C. C. Docket No. 25,481, Olds & Whipple, Inc. *v.* New Haven.

Cement.—In response to Fourth Section Application No. 13,425, the commission has authorized the carriers to depart from the long-and-short-haul provisions of the fourth section in making rates on cement mixtures in mixed carloads with cement from points in trunk-line territory to destinations in the same territory and points adjacent thereto and to points in the 60-per cent. group of central territory.—F. S. O. No. 10,599, Sup. 12.

The commission has found the rate on cement from Ada, Okla., to Shamrock, Tex., not unreasonable and has dismissed the complaint.—I. C. C. Docket No. 25,320, Oklahoma Portland Cement Co. *v.* C. R. I. & G. *et al.*

Finding the rates on cement from Chattanooga, Tenn., to destinations in the Carolinas not unreasonable, the commission has dismissed the complaint.—I. C. C. Docket No. 25,429, Signal Mountain Portland Cement Co. *v.* Alcolu *et al.*

Crushed Stone.—To allow the B. & O. to meet motor-truck competition, the commission has authorized the establishment of a rate of 80c. per ton without the addition of an emergency charge, on crushed stone from Greer to Moundsville, W. Va., intrastate.—I. C. C. Docket No. 25,135, Part 13, Increases in freight rates and charges, West Virginia.

Gravel.—Finding the rates on gravel from points in eastern Nebraska to destinations in western Iowa not unreasonable, the commission has dismissed the complaint.—I. C. C. Docket No. 25,278, Harrison Engineering and Construction Corp. *v.* C. B. & Q.

Lime.—Lime rates to destinations in the Southwest have been checked in on no definite basis and have generally been in effect for many years. In 1924 the carriers proposed to revise these rates; the revision was suspended and after hearing the rates proposed were voluntarily withdrawn by the carriers. These rates contained numerous fourth-section departures and the commission on June 3, 1932, refusing fourth-section relief, made it necessary for the carriers to propose a revision. Their proposal was to make all lime rates on the basis of 17.5 per cent. of the first-class rates which would automatically give them the necessary relief granted in the class-rate case. These proposed rates were suspended and after hearing an oral argument the commission found that the suspended schedules had not been justified. An order will be entered requiring their cancellation, without prejudice to the filing of new schedules of rates applicable on all kinds of lime between all producing points in the Southwest and in Ohio, Alabama, Tennessee, and northern Missouri, and Quincy and Marblehead, Ill., on the one hand, and points in southwestern territory on the other, which shall not exceed rates made on the basis of the scales of rates and differentials set forth in Appendix D hereto, based upon the distance over the shortest route over which carload traffic can be moved without transfer of lading; provided, that to points in Texas-Oklahoma differential territory, as defined in Consolidated Southwestern Cases, 123 I. C. C. 203, there may be added to the scale rates based on the through distance, differentials as set forth in Appendix D for the distance in differential territory over the rate-making route. The resulting rates we find to be the maximum reasonable for application in connection with a minimum of 30,000 lb. We further find that the rates which are 80 per cent. of the resulting rates, minimum 30,000 lb., made on the foregoing basis will be the maximum reasonable for application between the same points in connection with a minimum of 50,000 lb. The present grouping of origin points should be maintained, except as follows: Points north of St. Louis beginning with Hannibal should form a separate group which should include Quincy and Marblehead, and the distance to be used from said group should be the average from Hannibal and Quincy. The balance of the present St. Louis group should include E. St. Louis, Glencoe, Mincke, Byer's, Brickey's, Glen Park, Ste. Genevieve, and Mosher, and the distance to be used should be the average from St. Louis and Ste. Genevieve. The Springfield group should include Sequiota, Ash Grove, Springfield and Pierce City, and the distance should be the average from Springfield and Pierce City. Limedale and Ruddels, Ark., should remain in one group as at present and the distance to be used should be the average from both points. The Birmingham group should remain as at present and include Graystone, and the distance to be used should be the average from Newala and Graystone. The Northwestern Ohio group should be preserved and the distance to be used should be that from Gibsonburg. The Texas group should include New Braunfels, Dittlinger, Round Rock, McNeil and Houston, and the distance to be used should be the average from New Braunfels and McNeil, except that on traffic to Louisiana destinations Houston should be given the benefit of its geographical location. The rates resulting from the foregoing bases should be published as specific rates from all the producing points to all destinations in the respective territories affected to which there has been or is likely to be any future movement of lime. The rates from Ohio producing points to southwestern destinations under the foregoing bases may in some instances exceed the aggregates of the intermediate rates to and from Mississippi River crossings. It is understood, of course, that in publishing rates on the bases herein approved respondents are not authorized to exceed in any respect the aggregates on the intermediate rates contemporaneously in effect. The following scales are taken from Appendix D to the report, column (R) showing the rates and column (D) the differentials to be added for that part of the haul in Texas-Oklahoma differential territory.—I. C. C. I. & S. Docket No. 3,742 and No. 3,776, Lime from, to, and between the Southwest.

Miles	(R)	(D)	Miles	(R)	(D)
			380	22½	...
5	8	1½	400	23	...
10	9	2	440	23½	...
15	9½	2	480	24	...
20	10	2	520	24½	...
25	10½	2	560	25	...
30	10½	2	600	25½	...
35	11	2	640	26	...
40	11	2	680	26½	...
45	11½	2½	720	27	...
50	11½	2½	760	27½	...
60	12	2½	800	28	...
70	12½	2½	850	28½	...
80	13	2½	900	29	...
90	13½	2½	950	29½	...
100	14	3	1000	30	...
110	14½	3	1050	30½	...
120	15	3	1100	31	...
130	15½	3	1150	31½	...
140	16	3	1200	32	...
150	16½	3½	1250	32½	...
160	17	3½	1300	33	...
170	17	3½	1350	33½	...
180	17½	3½	1400	34	...
190	17½	3½	1450	34½	
200	18	3½	1500	35	...
210	18	3½	1550	35½	...
220	18½	3½	1600	36	...
230	18½	3½	1650	36½	...
240	19	4	1700	37	...
260	19½	4	1750	37½	...
280	20	4	1800	38	...
300	20½	4	1850	38½	...
320	21	4	1900	39	...
340	21½	4½	1950	39½	...
360	22	4½	2000	40	...

Lime and Limestone.—Fourth-section relief has been granted to establish and maintain rates on lime and ground or pulverized limestone from points in Maryland, Virginia and West Virginia to destinations in Virginia, without observing the long-and-short-haul clause, subject to the usual circuity limitations. Rates from, to, and between the higher rated inter-

mediate points shall not exceed rates prescribed in 153 I. C. C. 431 and 163 I. C. C. 701.—I. C. C. F. S. O. No. 11,280.

Examiner's Report

Lime.—Examiner C. J. Peterson proposes that the commission find the rates on lime from Denie, Ala., to destinations in Arkansas, Louisiana and Texas not unreasonable in the past but unreasonable for the future to the extent they may exceed the scales approved in I. & S. No. 3,742, lime, from, to and between the southwest (hereinbefore reported).—I. C. C. Docket No. 24,945, Muscle Shoals White Lime Co. *v.* A. G. S. *et al.*

New Complaints Filed

Sand.—Charging violation of Sec. 1, a new rate and reparation are sought on glass sand from Mapleton, Pa., and points in Mapleton district to Olean, N. Y.—I. C. C. Docket No. 26,073, Olean Glass Co., Olean, N. Y. *v.* Pennsylvania.

Slag.—New rates and reparation are sought in connection with the shipment of slag from Ensley and Woodward, Ala., to Walhalla, S. C., violation of Secs. 1 and 3 being alleged.—I. C. C. Docket No. 26,084, Birmingham Slag Co. *v.* Blue Ridge *et al.*

Rate-Committe Dockets

New England Freight Assn.

Ground Limestone.—Carriers propose to reduce the rate on ground limestone, car-load minimum weight 80,000 lb., from Ashley, Cheshire, and Farnum's, Mass., and grouped points to Brooklyn, N. Y., stations from $2.80 to $2.50 per net ton.—Docket No. 30,197.

Trunk Line Association

Fluxing Stone.—Shippers request a reduction in the rate on crude fluxing limestone[1] from Bellefonte and Pleasant Gap, Pa., to Rochester, N. Y., from $3.02 to $1.79 per gross ton.—Docket No. 31,171.

Ground Limestone.—Shippers are asking for a line of rates on ground limestone, car-load minimum weight 50,000 lb., from Buffalo, N. Y., to destinations on the C. & P. A., Erie and B. & O., which they claim will be comparable with the rates from Bellefonte. Statement of rates will be furnished on request.—Docket No. 31,096.

Lime.—An adjustment of the rates on common lime, car-load minimum weight, 30,000 lb., and on agricultural and fluxing lime, car-load minimum weight 50,000 lb., from Bellefonte, Pleasant Gap and Chemical, Pa., to destinations in Maine is proposed by shippers, that is purported to place these points on a comparable basis with Woodville, O. Statement of rates will be furnished on request.—Docket No. 31,106.

The rate to Empire Road, Me., not included in the above docket, is proposed to be 27 c. for common lime and 22 c. for agricultural and fluxing lime, which rates are alleged to be comparable with the rates from Woodville, O.—Docket No. 31,161.

The same rates as above are proposed to apply from the Martinsburg, W. Va., group to Empire Road, Me.—Docket No. 31,161, Sup. No. 1.

Central Freight Assn.

Cement.—Carriers propose to revise the minimum weight on cement between points in C. F. A. territory to 38,000 lb., which is 100 bbl., in packages, at the present rates, with no stopoff allowed. On cars billed stopoff for part unloading the regular minimum of 50,000 lb. will apply.—Docket No. 36,266.

Fluxing Stone.—Carriers propose to reduce the rate on furnace or foundry stone from Northwestern Ohio Group 1 points to Ashland, Ky., Portsmouth, O., and Ironton, O., from $1.66 to $1.38 per gross ton, and from Marble Cliff, O., to the same points from $1.01 to 84 c. per gross ton.—Docket No. 36,313.

Shippers propose a rate on raw dolomite or fluxing stone from Genoa, Marblehead, Martin and Luckey, O., to Wellsboro, Pa., of $2.50 per net ton.—Docket No. 36,431.

Shippers propose reductions in the rates on fluxing stone from Carey and McVitty's, O., to Middletown, O., from $1.44 to $1.20, and to Cincinnati, O., from $1.76 and to Portsmouth, O., Ashland, Ky., and Ironton, O., from $1.66 to $1.38 per gross ton. From Durbin and Cold Springs, O., rates ranging from $1.01 to $1.13 are proposed to be reduced to Middletown to 84 c. and to Cincinnati, Portsmouth, Ashland and Ironton to 93 c. per gross ton.—Docket No. 36,431.

A reduction in the rate on raw dolomite from Cleveland, O., to Lorain, O., to 76 c. per gross ton is proposed by shippers.—Docket No. 36,471.

Gypsum.—Shippers propose the establishment of a rate on calcined gypsum, an unfinished product for further manufacture, car-load minimum weight 80,000 lb., from Alabaster and National City, Mich., to Cleveland, O., of $2.75½ per net ton, to expire Dec. 31, 1933.—Docket No. 36,282.

Roasted Dolomite.—A rate of $2.37 per net ton to apply on roasted dolomite from Cold Springs and Durbin, O., to St. Louis, Mo, is proposed by shippers.—Docket No. 36,492.

Slag.—Carriers propose a rating on slag, ground or pulverized, in packages, car-load minimum weight 50,000 lb., from Ashland, Ky., to destinations in C. F. A. and Trunk Line territories of 60 per cent., of sixth class.—Docket No. 36,545.

Illinois Freight Assn.

Fluxing Stone.—It is proposed to reduce the rate on fluxing stone from Alton, Ill., to E. St. Louis, Ill., from 50c. to 29c. per net ton plus emergency charge, no switching to be absorbed, and to 43c. per net ton when consigned to industries on the A. & S. Docket No. 7,400.

Lime.—It is proposed to establish rates on lime (common, hydrated, quick, slacked, agricultural or fluxing), car-load minimum weight, 50,000 lb., on the basis of 80 per cent. of the I.C.C. Docket 16,170 scale, to alternate with the scale rates applying on car-load minimum weight of 30,000 lb.—Docket No. 7,063-A.

Western Trunk-Line Committee

Cement.—Shippers propose a reduction in the rate on cement from Speed, Ind., to Superior, Neb., from 37c. to 30½c. per 100 lb.—Docket No. 7,517-D.

Ground Limestone.—Shippers propose a revision in the rate on ground limestone,[1] from Valmeyer, Ill., to Colorado Common Points from $6.42 per net ton to $6.80 per net ton, the car-load minimum weight to be changed to 60,000 lb.—Docket No. 6,025-J.

Lime.—Shippers at Ste. Genevieve and Mosher, Mo., propose a reduction in the rate on lime, car-load minimum weight 30,000 lb., to Ashland, Wis., from 29c. to 23½c. per 100 lb.—Docket No. 403-M.

Sand.—A reduction in the rate on silica sand from Pacific, Mo., to Alton. Ill., from $1.20 to 82c. per net ton is proposed.—Docket No. 7,844-2.

Gray Summit, Mo., as a point of origin in the above proposal is shown in Sup. 1 to the above Docket.

The following mileage scale of rates is proposed to apply on sand and gravel[1] from points in Minnesota to destinations in Iowa, for single-line movement in Docket No. 2,898-K.

Miles	Rate	Miles	Rate
40	$0.75	110	$1.17
50	.80	115	1.19
60	.85	120	1.22
65	.91	125	1.24
70	.94	130	1.26
75	.97	135	1.28
80	1.00	140	1.31
85	1.04	145	1.33
90	1.06	150	1.35
95	1.09	155	1.37
100	1.13	160	1.40
105	1.15		

Southern Freight Assn.

Cement.—Shippers propose the publication of a through rate of 11½c. per 100 lb. on cement from Kosmosdale, Ky., to Ferdinand, Ind.—Docket No. 2,176.

Lime.—Shippers at Sherwood, Tenn., propose a reduction in the rate on fluxing lime, having no commercial value for chemical or building purposes, to Alabama City, Ala., to $1.73 per ton, car-load minimum weight 60,000 lb. The present rate is $2.16.—Docket No. 1,961.

[1] The carload minimum weight will be 90 per cent. of the marked capacity of the car except that when the car is loaded to its full cubical or visible capacity the actual weight will apply.

Foreign Developments

French Pit Yields Sand of High Silica Purity

Silica sands of high purity occur at several sites in France and Belgium, but the purest commercial deposit is at Nemours (Seine et Marne), where, according to *Genie Civil*, Apr. 1, 1933 (102:307-8), the Fontainebleau sands contain 99.75 per cent. SiO_2. The largest operation is that of the Société Indus trielle des Sables de Nemours, and the sand finds a market as far away as the United States and Japan for special uses, such as optical glass.

The sand is covered with 50 ft. and more of limestone overburden, and through the purest part of the deposit sandstone blocks are found embedded in the sand. The removal of the overburden begins with undercutting the limestone with a series of narrow galleries and then cutting away the pillars until a whole block crumbles. In places this is impractical and the rock is blasted in the ordinary manner. The sand itself is loaded either by hand or by scrapers and inclined belts. To avoid possible contamination the sand is sorted immediately according to quality and shipped to destination; no stock is maintained in storage-piles.

Urges More Attention to Fluorspar as Flux

Advantages claimed for the addition of small percentages of fluorspar to a raw cement mix are well known: a considerable lowering of the temperature required for clinkering, fuel economy, decreased wear of the refractory lining, and the production of a brittle clinker easy to grind. In *Revue des Materiaux de Construction* for April (No. 283:127-30), V. Charrin urges French cement producers to give more serious thought to the use of fluorspar admixtures. France is an important producer of fluorspar, having produced one-sixth of the world's output of 300,000 metric tons in 1929. The French deposits are of great purity and are usually worked solely for the production of this mineral.

French Cement Users Want the Gray Color

French cement users have a decided tendency to judge the quality of cement by its color, preferring the familiar dark gray—a tendency that probably goes back to the days of the shaft kiln, when color betrayed over- or underburning. French makes of high-quality cements lacking this color find it worthwhile to color them artificially. Coloring material added in grinding is not satisfactory; it tends to separate and, anyway, the tolerance for foreign material allowed in the specifications covers only the quantity of gypsum required. Of many experiments toward achieving the desired color by materials added before burning, the most promising have made use of metallic oxides, particularly iron. The Société des Ciments Francais, which has made a long study of the problem, has developed and patented a process in which the color wanted is attained by adding magnesia in the form of dolomites or dolomitic limstones along with iron oxide to the cement raw mix.—*Revue des Materiaux de Construction* No. 283: 132-3, April, 1933.

Siliceous Mix Benefits Asbestos-Cement Units

Pronounced superiority of asbestos-cement pipe and slabs, in which the Portland-cement binder is replaced by Dr. G. Morbelli's mixture of a siliceous material and a cement of low basicity, is indicated by investigations reviewed by Prof. F. Ferrari. Pieces, which 12 to 24 hr. after molding were steam-cured 8 hr. under presure and tested at the Eternit plant in Genoa, showed strengths well above those of the standard Eternit after considerably longer storage and curing. Tests by Dr. Hans Kühl, by Prof. G. Natta of the Milan Royal Polytechnic and by Ferrari show greatly increased resistance to corrosive action of pure water and acid solutions. Tests under way seem to show similar betterment in resistance to oils and sugar solutions, and to high temperatures.—*Cemento* (Barcelona), 5:114-9, Apr., 1933; *Revue des Materiaux de Construction*, No. 283:133-7, April; from *L'Industria Chimica.*

Study Relations of Stone Structure and Strength

Petrographic investigations of stone have several main objects: to determine the stone's mineralogic structure and its classification; to report the state of preservation of the component minerals, making possible an opinion on its probable resistance to weathering; to relate the petrographic data to the results of mechanical tests, ascertaining the reasons for varying behavior under practical conditions.

Such are the objects outlined for a recent German study of thirteen natural stones (granite, porphyry, diabase, basalt, basalt lava, sandstone) and five slags. A definite connection was found between the stone's strength properties and the size of the grains, the way the grains are joined, the weathering of embedded material, and irregularity of structure. Similarly, differences in resistance to impact are explainable by differences in structure revealed by petrographic description. A particularly interesting result of the study is the conclusion that the Föppl ramming test widely used in Germany for evaluating stone is an adequate measure of the stone's utility. The impact bending test can also be taken over from ceramics, if large enough test specimens are used.

The complete report is a pamphlet by H. Burchartz, G. Saenger and K. Stöcke, *V.D.I. Forschungscheft* 358. Berlin, 1933, issued as a supplement to *Forschung auf dem Gebiet des Ingenieurswesens* v. 4, no. 1. A digest by K. Stöcke appears in *V.D.I. Zeitschrift*, 77:404-5, Apr. 15, 1933.

As a service to its readers PIT AND QUARRY *is prepared to supply, at the actual cost of labor and materials, an English translation of any paper abstracted in this magazine. In the case of illustrated papers or articles photostatic reproductions of the illustrations will accompany the translations. Prices will be quoted on request.*

French Plant Installs New Kiln, Power Plant

Among the first cement plants in France was that of the Ciment Portland Artificial de Pont-a-Vendin (Anciens Etablissements Ernest Cambier), built in 1872. It was totally destroyed during the war, but immediately after was rebuilt. The plant was enlarged in 1932 by the installation of an additional rotary kiln, 3 m. by 50 m. The raw material is chalk, and manufacture follows the wet process. Oliver disk filters take out part of the moisture of the slurry. In connection with the new kiln a very compact waste-heat boiler and 1,500-kw. generating plant has been installed. The boiler, and a stand-by boiler, are equipped with Green economizers. New silos are planned for additional storage of finished cement. —C. E. Mosman in *Revue des Materiaux de Construction* No. 283:121-7, April, 1933.

Pre-Cote Corp. Moves Main Office to Texas

The Pre Cote Corp. has moved its offices from Indianapolis to 318 Republic Bank Bldg., Dallas, Tex. The Pre Cote Laboratories, including the research and technical departments, are retained in Indiana under the corporate title of Pre Cote Chemicals, Inc., at 2917 Northwestern Ave., Indianapolis, Ind., with K. E. McConnaughay, president, in charge.

Recent Patents

AMERICAN

Excavating

Tower excavator. Werner Lehman, South Milwaukee, Wis., assignor to Bucyrus-Erie Co. No. 1,906,760.

Excavating machine. George M. Turnham, Maple Plain, Minn. No. 1,907,373.

Hydraulic power shovel. John D. Rauch, Lima, O., assignor to Ohio Power Shovel Co. No. 1,907,442.

Grinding

Method of fine grinding of cement material. Carl Pontoppidan, Holte, Copenhagen, Denmark, assignor to F. L. Smidth & Co., New York, N. Y. No. 1,904,523.

Grinding mill. Rudolf P. Jugel, Denver, Colo., assignor to American Ball Mill Co. No. 1,905,411.

Grinding mill. Charles E. Wuensch, Joplin, Mo., assignor to Minerals Beneficiation Inc. No. 1,905,545.

Lime Manufacture

Material for making water-proof mortar and method of producing. Knott C. Rankin, Rockland, Me., assignor to Rockland & Rockport Lime Corp. No. 1,905,187.

Loading

Power loader. John L. Clarkson, Nashville, Ill. No. 1,904,355.

Loading machine. Robert H. Kraft, Chicago, Ill., assignor to Goodman Mfg. Co. No. 1,905,472.

Loading machine. John R. Madeira, Chicago, Ill., assignor to Goodman Mfg. Co. No. 1,908,434.

Loading skip. Adolph W. Rybeck, Milwaukee, Wis., assignor to T. L. Smith Co., same place. No. 1,914,385.

Rod grab for heapable material. Paul N. G. Gaertner, Vlaadingen, Netherlands. No. 1,914,613.

Power shovel. Henry W. Karaska. No. 1,914,920.

Loading machine. Charles R. Hughes, Altoona, Pa. No. 1,914,021.

Cement loader, bag counter, and indicator for batch-mixing apparatus. John F. Robb, Cleveland Heights, O. No. 1,916,531.

Loading machine. Andrew Hauge, Michigan City, Ind., assignor to Sullivan Machinery Co. No. 1,917,368.

Machine for handling coal and other loose material in mines. Merrill A. Evans, Wharton, W. Va. No. 1,917,514.

Mining

Mining machine. Thomas E. Pray, Chicago, Ill., assignor to Goodman Mfg. Co. No. 1,906,810.

Mining machine. George Brown, Chicago, Ill., assignor to Goodman Mfg. Co. No. 1,907,719.

Mining machine. Thomas E. Pray, Chicago, Ill., assignor to Goodman Mfg. Co. No. 1,908,179.

Mining machines. Morris P. Holmes, Claremont, N. H., assignor to Sullivan Machinery Co. Nos. 1,914,503, 1,914,504, and 1,914,505.

Mining method. George R. Dormer, Eveleth, Minn. No. 1,915,411.

Miscellaneous

Cutter-chain block. Newton K. Bowman, Bowdil, O. No. 1,903,771.

Core-breaker. Newton K. Bowman. No. 1,903,772.

Consistency-controlling mechanism for concrete mixers. Perry P. Yohe, North Hollywood, Cal., assignor to Koehring Co. No. 1,904,025.

Working implement for percussive tools. Arthur E. Peters, Phillipsburg, N. J., assignor to Ingersoll-Rand Co. No. 1,905,497.

Pulverized Material Handling

Apparatus for delivering pulverized material. Wilmot D. Cloos, South Orange, N. J., assignor to Edison Cement Corp., West Orange, N. J. No. 1,917,827.

Screening

Apparatus for screening materials. Benjamin F. Roberts, Brazil, Ind. No. 1,904,032.

Vibrating screen. Burnett E. Green, Alpena, Mich., assignor to Huron Industries, Inc., same place. No. 1,905,393.

Screening apparatus. Morley P. Reynolds, Cleveland Heights, O., assignor to W. S. Tyler Co., same place. No. 1,906,336.

Washing

Gravel and sand washer. Virgil M. Haddon, Valley, Neb. No. 1,914,420.

FOREIGN

Cement and Concrete

Cement and cement products, and process of manufacturing them. D. R. E. Werner, S. Giertz-Hedstrom and O. Stalhane. French 743,101.

Manufacture of acid-proof cements. I. G. Farbenindustrie A. G. French 743,301.

Apparatus for shaping moistened cement raw material before burning. Arno Andreas, Munster, Westphalia. German 562,700.

Apparatus for producing air-free concrete, mortar, etc. Eugene Freyssinet, Neuilly-sur-Seine, France. German 562,481.

Treatment of cement, cement plaster and the like with ammonium carbonate. Scottish Dyes Ltd., Grangemouth, Scotland. German 562,291.

PIT AND QUARRY *will furnish, at its actual cost, a copy of any patent cited herein. A charge of ten cents per copy is made by the U. S. Patent Office, Washington, D. C., and readers may procure a copy directly by addressing the Commissioner of Patents, with payment for copies requested. Postage stamps are not accepted by the Patent Office. We will endeavor to obtain copies of foreign patents for our readers but we cannot give assurance in every case for the reason that copies of such patents are not printed for distribution as liberally as are the American copies, nor is there a fixed charge per copy.*

Apparatus for producing cement. Arno Andreas, Munster, Westphalia. German 566,509.

Device for blowing material into a chamber where it is exposed to hot gases from a following kiln. Arno Andreas, Munster, Westphalia. German 556,573.

Device for preliminary treatment of cement raw material. Arno Andreas, Munster, Westphalia. German 568,620.

Excavating

Travelling rollers for slewing excavators and cranes. Orenstein & Kop-

Open-pit excavating apparatus. ATG Allgemeine Transportanlagen-Gesellschaft m. b. H., Leipzig. German 562,278 and 562,878.

Excavators. G. L. J. Malterre. French 739,920.

Gypsum

Gypsum tile. H. Erhard. French 737,904.

Process for obtaining porous materials from a base of calcium sulfate. Imperial Chemical Industries, Ltd. French 738,997.

Kilns

Combined hearth and shaft kilns for the production of fused cement. Arno Andreas, Münster, Westphalia. German 552,752.

Rotary kilns, coolers and dryers. J. S. Fasting. British 388,177.

Material-Handling

Conveyor for concrete, mortar, etc. R. Londais. French 737,900.

Scraper bucket. Soc. Ernest Heckel. French 739,242.

Traveling crane for handling bulk materials. Soc. Ernest Heckel. French 739,243.

Apparatus for handling ready-mixed concrete. E. A. Hoffmann. French 739,796.

Bag-filling and weighing machine. Bancroft Holdings, Ltd., assignee of Henry S. Johns, Hamilton, Ont. Canadian 327,227.

Bagger for cement, lime and gypsum and collector for spillage. Soc. Carl Haver & Ed. Boecker. French 737,224.

Devices for opening flattened bags and feeding them to packing machines. F. Hesser Maschinenfabrik Akt.-Ges. British 387,947.

Silica

Process of producing silica bricks and the like. M. Hollenweger. British 382,913.

Manufacture of silica bricks. M. Hollenweger. French 738,241.

Manufacturing silica bricks. B. J. Pines. British 387,194.

Unclassified

Production of a pumice-concrete flooring with a Sorel-cement surfacing. Biber & Schmieder, Dresden. German 563,163.

Weatherproofing building materials. Dr. Berthold Redlich, Feldkirchen near Munich. German 563,271, addition to 554,995.

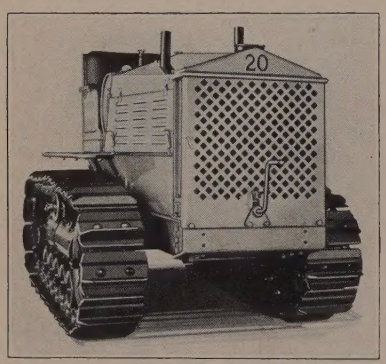
Magnesite composition flooring. H. L. Tucker. British 388,158.

New Machinery and Supplies

Cleveland Tractor Co. Announces New Unit

The Cleveland Tractor Co., Cleveland, O., announces the new "Cletrac" 20 tractor which has a draw-bar pull of 23 hp., a maximum of 25 belt hp., and an N.A.C.C. rating of 25.6 hp. The engine is a 4-cyl. L-head unit with a 3-bearing crankshaft and cylinders cast en bloc. A gear-driven pump supplies oil by pressure through a filter to the crankshaft, connecting rods and timing gears.

The clutch is of the 10-in. double-plate push type. The transmission has three speeds forward and one reverse with a speed of 4 m.p.h. in high at the governed engine speed of 1250 r.p.m. The gears and shafts are of heat-treated alloy steel operating on heavy-duty ball bearings and are lubricated by a plunger pump. Steering is through a planetary compensating differential, actuated by the engine, giving positive power on both tracks



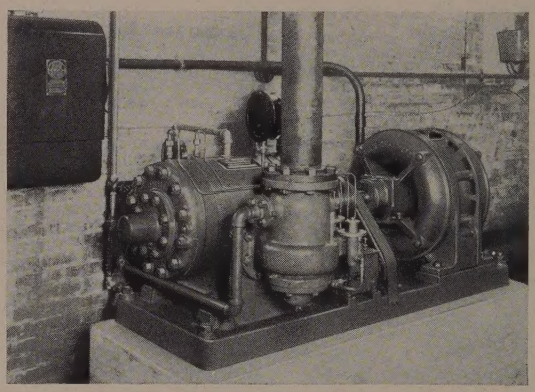
Crawler-type tractor.

when turning. The tracks consist of 54 drop-forged 11-in. steel shoes with interchangeable grousers. Drive sprockets are of cast steel with alloy steel shafts and there are five lower and one upper track wheels. This unit has an overall length of 108 in. and weighs about 6,000 lb. A power pulley and rear power reduction are extra.

Announce Allis-Chalmers Rotary Air Compressors

The Allis-Chalmers Mfg. Co., Milwaukee, Wis., recently announced a new line of rotary air compressors of the multi-cellular, sliding-vane type, in both water and air-cooled designs. This line covers a range of volumes from 50 to 2,000 c.f.m. at pressures up to 150 lb. and vacuums up to 29.85 in. mercury. The air-cooled units are suitable for pressures up to 10 lb. G., and the vacuums up to 18 in. Hg, and the water-cooled units for higher pressures and vacuums.

Advantages claimed for these units are smooth operation, small dimensions, continuous delivery and absence of maintenance requirements. No belts or pulleys are normally required



Rotary air-compressor.

as the units operate at standard motor speeds. Their design is extremely simple, involving no valves or complicated motions, and all working parts are totally enclosed but easily accessible.

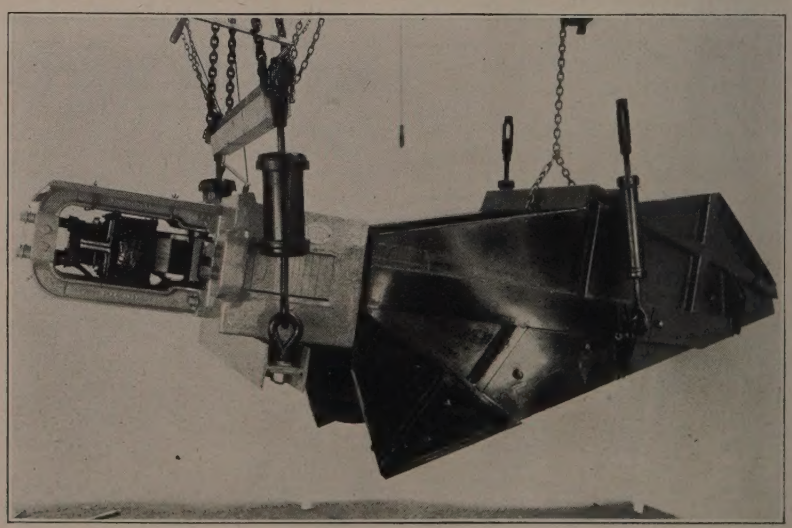
New Pan-Feeders Employ Old Vibrating Principle

The Traylor Vibrator Co., Denver, Colo., makes a vibrating pan-feeder using the same principle of vibration as its vibrating conveyors, screens, coolers, etc. These feeders are made in any desired widths and in lengths of from 3 to 7 ft., depending upon the duty and the size of power-unit required. They can be applied directly to any standard a.-c. power-lines and can be electrically equipped for automatic operation at predetermined intervals. The rapid pulsating vibration, 3,600 per min. on 60-cycle current, insures a uniform discharge, and materials whose characteristics are suitable can be conveyed upgrade with these units. They are designed to handle high-temperature material and can be equipped with tubular or fully-inclosed conveying surfaces for the prevention of dust loss and for special conditions.

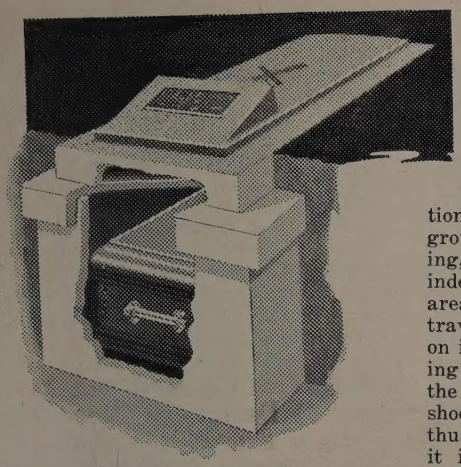
These units can also be used as combined gates and feeders with positive feed-control. In a recent installation in the sand-and-gravel plant of Six Companies, Inc., at Hoover Dam, nine 36-in. by 6½-ft. Trayco standard pan-feeders are used in a row under the track hoppers which receive the raw material at the plant. These feeders are installed horizontally and, although each unit has a rated capacity of 400 tons per hr., it has an actual daily average of 500. All these feeders are remotely-controlled from a central tower located on the top of the plant and are connected so that any four of them may discharge at the same time to the plant belt-conveyor.

Concrete Burial Vaults Developed by Neff & Fry

The Neff & Fry Co., Camden, O., manufacturers with 26 years of experience in the manufacture of burial vaults, concrete-stave storage silos, and other similar units, has developed a new line of concrete burial units



Pan-feeder using vibrating principle.



Concrete burial vault.

said to cover the spread required in funeral merchandise, and giving a range of products not before obtainable.

This series of burial units is headed by the Surface-Sepulcher which consists of three pieces, the casket chamber, overhanging lid, and exposed cover plate. The dead air space between the cover and lid make possible the use of a grave depth of 39 in. or less. The exposed part is finished in granite chips ground and polished to a gloss resembling that of high quality granite. The Sovereign-Sepulcher and the Sectional Sepulcher have also been developed in lower price ranges. With this line of vaults it is claimed that there are three sales possibilities, sales for immediate use, for future use, and sales of covers only as memorials over past burials. All units are made from scientifically mixed concrete with vibrating forms so reinforced as to meet A.C.I. specifications.

The Neff & Fry Co. believes the field for these products to be too large for any one manufacturer and proposes to let out equipment to those interested in the manufacture of these vaults in various sections of this country and Canada. A merchandising plan has been set up to help sell these units and the company also offers to train those interested in taking on this equipment.

The Eugene F. Olsen Co., Adrian, Mich., is sole distributor of this equipment for the Neff & Fry Co.

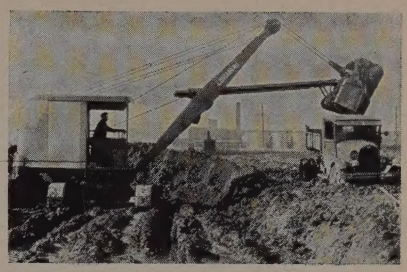
Walking Drag-line Has Big Bucket, Long Boom

The Bucyrus-Monighan Co., South Milwaukee, Wis., has developed a new 10-cu.yd. walking drag-line, with a 160-ft. boom. This new model is said to be the largest walking drag-line ever built and combines the advantages of long reach and big bucket capacity with walking traction. The structure of the Bucyrus-Monighan 10-W is similar to other machines produced by the company, but is greatly strengthened throughout to meet the much higher stresses imposed by handling such a large bucket on a long boom. The operator's cab has been elevated high up in the front right-hand corner, and gives the operator an unobstructed view of the bucket and the work. The walking traction shoes are raised high above the ground while the machine is excavating, during which time it rests on an independent circular base of large area. The direction the machine is to travel is changed, while it is standing on its circular base, by simply revolving the swinging platform to which the walking shoes are attached. The shoes, elevated above the ground, are thus pointed in the direction in which it is desired to move, the walking mechanism starts operating, and the machine moves off in a direct straight line toward the desired position. Because the machine does not rest on its traction shoes while excavating, and because of the large area of the bearing surfaces, it works and moves on any surface that will support a man. This, it is claimed, is true of the largest as well as of the smallest units.

Design of New Shovels Reduces Excess Weight

The Universal Crane Co., Lorain, O., announces a new line of crawler shovel and crane equipment ranging from ¾-½-⅜ cu.yd., known as the Lorain 40 and 30.

Containing many of the design and construction features of the Lorain line, produced by its parent company, The Thew Shovel Co., Universal now offers a complete line of machines of center-drive design throughout plus a new development, balanced design, which, it is claimed, develops high capacities per pound of weight. The working weight of the Lorain 40 as a ¾-cu.yd. shovel is approximately 30,000 lb. and of the Lorain 30 as a ½-cu.yd. shovel, approximately 23,000 lb. The dippers on the units, and their crane ratings conform to the standards of the Shovel and Crane Mfg. Assn.



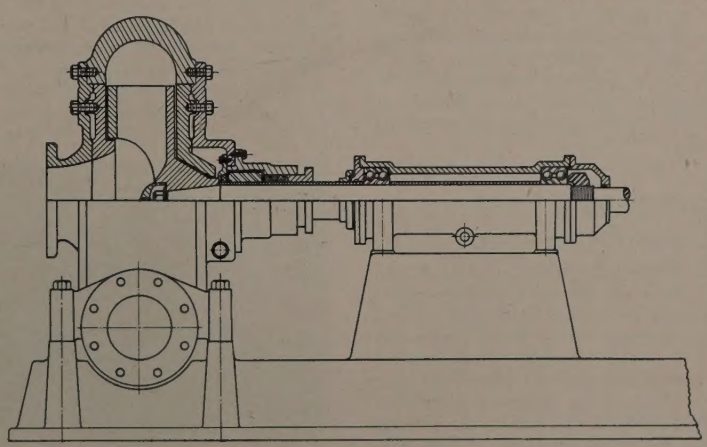
One of new Universal Crawler shovels.

Units are powered by 6-cyl. Waukesha motors, the Lorain 40 with an ML motor, 4 in. by 4¾ in. developing 52-hp., the Lorain 30 with a TL motor 3⅜ in. by 4¾ in., 43-hp. An impulse-coupled magneto, radiator, fan, oil filter and air cleaner are standard equipment.

Heavy-Duty Sand Pump Has Many New Features

The Kansas City Hay Press Co., Kansas City, Mo., has developed a new "Lightning" heavy-duty sand pump which has a number of novel features said to add greatly to the efficiency of the pump. The shell, runner and renewable side discs are all made of extra-heavy semi-steel. The stuffing box area is protected against the intrusion of sand particles by a large-capacity water seal and by a special cup-leather seal around the shaft next to the runner.

An adjustable floating steady bearing is provided next to the runner and back of the water seal, eliminating excessive overload on the main bearing due to overhang of the runner. The runner has a taper bore and can be removed without removing the shaft from its position. The main bearings are provided with two extra-heavy double-row ball bearings which are encased and run in oil. The pumps are at present available in the 8-in. size and a 10-in. unit will also soon be available.

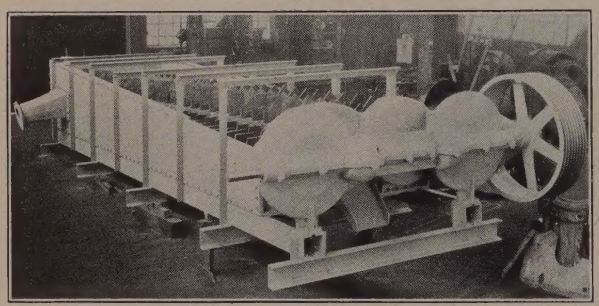


Heavy-duty sand pump.

McLanahan Develops Improved Log-Washer

The McLanahan & Stone Corp., Hollidaysburg, Pa., has developed a new log-washer which incorporates all of the many improvements resulting from their 50 years of experience in the manufacture of this type of equipment. This washer has electrically-welded square logs with easily removable and interchangeable Macmetal paddle tips. The location and arrangement of these paddles is also new. The heavy split ball and socket log bearings with split bronze bushings are adjustable and reversible and are all fixed in one housing. Each log is driven separately by gears running in oil. Alemite lubrication is used.

It is claimed that this new log-washer has a greater capacity and produces a cleaner product than previous models, with lower power consumption and minimum water requirements. These log-washers can be obtained with V-belt, gear reduction, or flat belt drive, as desired and are made in different lengths and sizes.



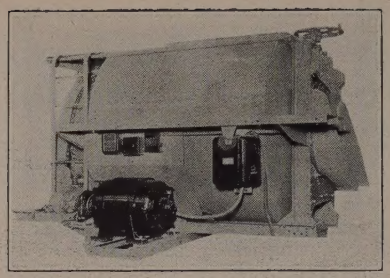
The new McLanahan & Stone Corp. log-washer.

Flexible Coupling Made of Standard Roller-Chain

The Link-Belt Co., Indianapolis, Ind., announces the new "RC" flexible coupling using the company's Silverlink roller-chain. This coupling consists of two cut-tooth sprocket wheels and a piece of roller-chain to connect them. A pin-and-cotter link makes it easy to couple or remove the chain when desired. Where protection from dust, dirt or other conditions is advisable, the coupling can be inclosed in either a stationary or revolving automatically-lubricating oil-retaining casing.

Kaiser Paving Co. Places Large Equipment Order

The Kaiser Paving Co., San Francisco, Cal., has placed a contract with the Chain Belt Co., Milwaukee, Wis., for 21 specially-built Rex 3½-cu. yd. Moto Mixers, 28 complete Rex-Stearns belt conveyors, and a Rex super-size concrete mixer for the central mixing plant now being erected at the site of the San Francisco-Oakland bridge. The Moto-Mixers are equipped with electric motor drives and will be mounted in the hulls of a fleet of barges, in groups of 4 or 2 in each barge.



One of the mixer bodies to be used on barges.

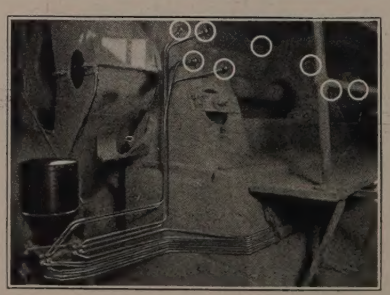
The barges are 105 ft. long and 34 ft. wide and each has 80 compartments for aggregates. Four belt conveyor systems on each barge will carry the aggregates from the bins to the mixers and the finished concrete from the mixers to the decks of the barges. Each of the 7 barges will be a complete plant and will carry enough aggregates for from 20 to 40 batches for each mixer, depending on whether 2 or 4 mixers are used on the barge. This is said to be the largest order for concrete-mixing machinery placed in the United States since the construction of the Panama Canal which is entirely fitting as this bridge is one of the outstanding engineering undertakings of all time.

Cement Plant Installs Mechanical Lubrication

As an important step in the reduction of its operating costs the Nazareth Cement Co., Nazareth, Pa., has been applying automatic, mechanical forced-feed grease lubrication to its equipment. The result has been a substantial saving in the maintenance of the machinery and a 27 per cent. saving in lubricant is also claimed.

The first application of one of these systems was to the ten bearings of a hot clinker conveyor drive. A Bosch type KP-6 lubricator was installed. This unit is operated from one of the conveyor drive shafts by means of a pin and a push rod operating the oscillating lever of the lubricator. Due to the success of this installation a similar unit was then installed on the kiln drives, serving the twelve lubricating points of the gear train bearings.

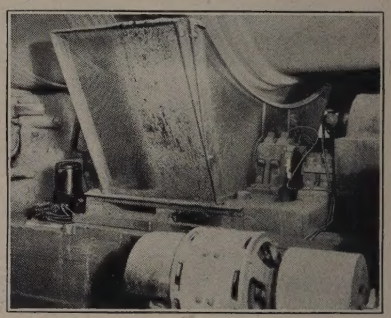
A third unit, this one a Bosch KP-30 lubricator, was next installed on a Fairmount crusher. This unit is driven by means of a pin screwed into the end of the pinion shaft and a push-rod which actuates the oscillating lever of the lubricator. This unit is provided with a grease tank having a capacity of 60 lb. of grease.



Automatic force feed lubricating system on a large crusher.

New Tire Ply Reduces Danger of Blowouts

The B. F. Goodrich Co., Akron, O., has developed a new tire incorporating a construction change which is said to reduce the danger of blowouts. This improvement consists of a special ply made of a special compound which resists internal heat and friction and which is known as the "life-saver golden ply."



Force-feed lubricating system on kiln drive.

Aggregates (from page 41)

the Central Eastern Region, where shipments during the first quarter of 1930 far exceeded both those of crushed stone and those of sand and gravel. Slag shipments, of course, are centered in the principal iron- and steel-producing districts.

The preponderance of sand and gravel in the Northwest Region stands out prominently, as does also the wide seasonal fluctuation. On the other hand, shipments in the Pocahontas, Southern, and Southwestern Regions are less susceptible to seasonal changes and present a more uniform curve.

The first quarter of 1933 is not without some optimistic signs. Crushed-stone shipments in the Pocahontas, Southern, and Central Western Regions, as well as slag shipments in the Southern and Southwestern Regions, showed an increase over the corresponding period of 1932. Little evidence of improvement can be expected in figures for the second quarter, but with the public-works appropriations under the National Industrial Recovery Act available during the latter half of the year, a moderate upturn in shipments of aggregates seems reasonable.